THE IRON AGE

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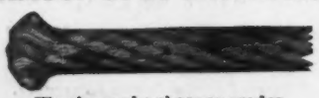

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AMERICAN SHEET AND TIN PLATE COMPANY

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America's Standard Ammunition

The Union Metallic Cartridge Co., Bridgeport, Conn.

Agency 313 Broadway, New York

WATER TUBE BOILERS *The* Babcock & Wilcox Co., 85 Liberty Street New York

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A Most Difficult Problem

To manufacture horseshoe nails **stiff enough to drive** into the hardest hoof without crimping—**Flexible** enough to **clinch** without breaking—**Tough** and **strong** enough **to hold** the shoe under the tremendous strains and wear in service.

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"Swedoh" Cold Rolled Steel is unexcelled for **Drawing** and **Stamping**

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SEE PAGE 24

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Small tubing in Brass, Copper, Steel, Aluminum, German Silver, &c. Sheet Brass, Copper and German Silver. Copper, Brass and German Silver Wire. Brazed and Seamless Brass and Copper Tube. Copper and Brass Rod.

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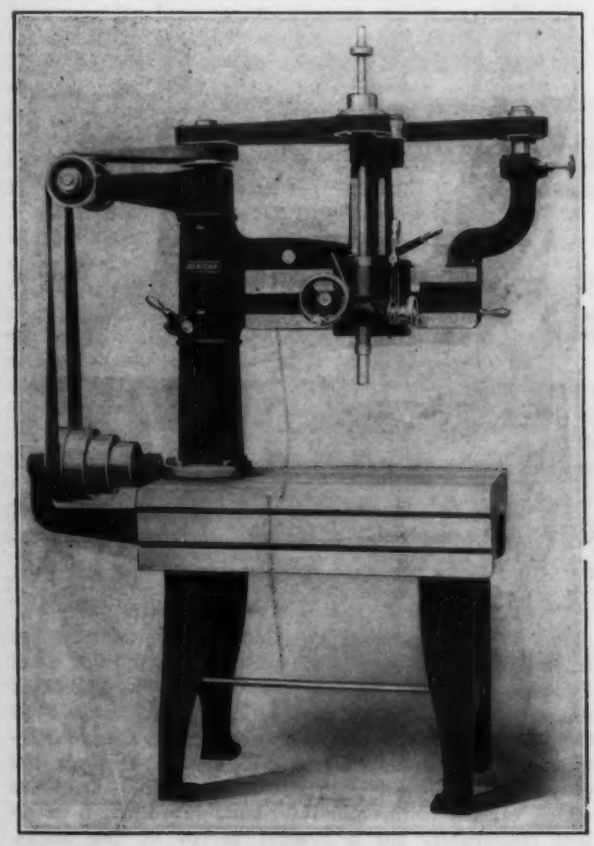
RIVERSIDE N. J

THE IRON AGE

New York, Thursday, March 25, 1909.

The American High Speed Sensitive Radial Drill.

The first machine of its kind built in this country is the high speed sensitive radial drill which is a new product of the American Tool Works Company, Cincinnati, Ohio. It is designed for a particular class of work which the maker believes exists in sufficient amount in many manufacturing plants to make the tool highly appreciated. This work is such as is most profitably done on a sensitive drill, using drills up to ¾ in. diameter, and particularly those made of high speed steel which should be driven at high velocity to realize their full efficiency.



A High-Speed Sensitive Radial Drill Built by the American Tool Works Company, Cincinnati, Ohio.

The purpose of making a high speed sensitive drill in radial pattern is to combine the efficiency of a sensitive drill with the convenience and high producing capacity of a radial drill. Such work as the drilling of switchboards, automobile chassis, transmission cases and other parts, cash register details, harvesting machinery and all kinds of small hole drilling is that for which this machine is particularly adapted.

The machine is unique in its general design, as the illustration shows. The main object of having everything contribute to convenience is strikingly illustrated in the location of all controlling and operating levers to facilitate rapid manipulation. The work to be drilled is placed on the large table which is at a convenient hight from the floor, and does not have to be reset for drilling each individual hole. This feature alone saves considerable time, and also insures uniformity and accuracy in the alignment of the holes. In the driving mechanism it will be seen there are no gears from the countershaft to the main spindle; a 2-in. double belt running at high speed transmits abundant power and speed directly to the drill spindle. Proper tension of this belt is obtained through an idler regulated by a knob as shown.

All of the driving and idler pulleys have special ball bearings consisting of a double set of hardened and ground ball races and cones. One set is located at each end of the pulley journals. These are dustproof and of a form to retain the lubricant, which is preferably vaseline and graphite, and needs to be renewed only at long intervals. The spindle is of high carbon crucible steel, ground, and fitted with dustproof, self-lubricating, ball thrust bearings. Six changes of speed are available, from 300 to 900 rev. per min. in geometrical progression, obtained through a two-speed countershaft and three-step cone pulley. At the top of the spindle is an adjustable stop collar which may be used as a depth gauge. The spindle is fed by a long hand lever on a ratchet wheel, the latch handle being self-releasing when in the uppermost position. A convenient hand wheel supplies quick return to the spindle.

The column is tubular in section, ribbed internally to make it stiff. It extends through the arm into the cap at the top of the drill and is firmly bolted to the top of the table. The arm has a parabolic beam and tube section similar to that used on the company's larger radial drills to give exceptional rigidity and the greatest resistence to bending and torsional strains. The lower line of the arm is parallel to the table, giving the same hight capacity at any distance from the column. The arm may be swung easily on the column and may be clamped securely in any position by a convenient binder lever. The arm is not arranged to move vertically, as ample provision for variable hights of work is made in the head. The latter is of special design and is moved along the arm by a hand wheel through an angular rack and spiral pinion. It may be clamped at any point by the lever shown on the right of the head. The head consists of the main saddle, which slides upon the arm and carries an auxiliary sliding head upon a vertical dovetail. This allows a vertical movement of the head covering the full range of work between the table and the arm. The vertical slide may be securely locked by the lever shown at the left of the head. Ample means are supplied for taking up the wear of all slides.

The table is of box section planed on top and both sides, and is mounted upon legs giving it substantial, rigid support. Its hight is such as to suit the average operator when standing up to his work. T slots on the top and front side of the table planed from the solid are available for attaching work, and the back vertical surface is planed to be of service in squaring up work, &c.

These drills are made in two sizes with 2 ft. and 3 ft. arms. The following are the principal dimensions.

	2-ft. arm.	3-ft. arm.
Spindle speed, revolutions per minute	300 to 900	300 to 900
Drills to center of circle outside of column, inches	49	73
Minimum distance from spindle center to column, inches	6¼	6¼
Maximum distance from spindle to table, inches	19	19
Hight of table above floor, inches	35	35
Working surface of table top, inches	20 x 28½	20 x 40½
Working surface of table side, inches	6¼ x 28½	6¼ x 40½
Maximum hight to highest point of spindle	7 ft. 7½ in.	7 ft. 7½ in.
Traverse of spindle at one setting, inches	5½	5½
Vertical traverse on head slide, inches	8	8
Traverse of head on arm, inches	18¼	30¼
Distance from underside of head to table, inches	15¾	15¾
Floor space (full swing), inches	66¾ x 87½	78¾ x 111¾

The regular equipment includes a two-speed countershaft of special design for high speed work, having a turned and ground shaft, and boxes in the hangers of a new improved gravity and wick oiling type taking their supply from large oil reservoirs which need replenishing only very infrequently. The countershaft carries a three-step cone pulley with a pair of friction pulleys 10 in. in diameter by 3 in. face and intended to run at 310 and 387

rev. per min. No wrenches are required in the ordinary use of the machine.

Under ordinary conditions the 2-ft. machine will handle a ¾-in. drill running at 375 rev. per min. when drilling in cast iron, with a cutting speed of 73.7 ft. per minute and a feed of 0.128 in. per revolution, which corresponds to drilling at the rate of 10½ in. a minute. This work is accomplished with a drive of 3¼ hp. When desired any of the machines may be equipped with a tapping attachment.

The White Steel Concrete Railroad Tie.

The diminishing supply of timber suitable for railroad ties is stimulating efforts to produce a metal tie of requisite strength and fitness and cheap enough to manufacture and install to make it a practical substitute for wooden ties. The tie here shown has been designed and patented by H. P. White, president of the New Era Mfg. Company, Kalamazoo, Mich. It is composed of a pair of supporting blocks made of sheet steel boxes filled with concrete connected by a T section steel tie bar.

In Fig. 1 is seen the general form of the complete tie, as viewed from above, with sections of the track rails in position. Fig. 2 is a cross section of one of the blocks. This member is filled with concrete reinforced with steel bars, as indicated by the dotted lines, and has its end walls tied together by through bolts. These boxes are of sheet steel about 1-16 in. thick, and for standard steam railroad tracks are approximately 30 in. long by 8 in. wide by 6 in. thick. For use with 80-lb. rails a T tie bar 3 x 1 x ⅝ in. is used. The vertical leg of this bar is provided with rail openings located centrally above the blocks, undercut to admit the flange tie plates upon which the rails rest. The tie plates are wedge shaped, so that when driven up they will tightly clamp the rail flange and bind it securely in their grooves. These wedge tie plates are serrated on their rounded edges to cling to corresponding serrations in locking plates, which are secured to the horizontal flange of the tie bar by dowel pins. As will be seen in Fig. 2, the bottom of the supporting block is convex; this is to cause it to hold firmly in its bed.

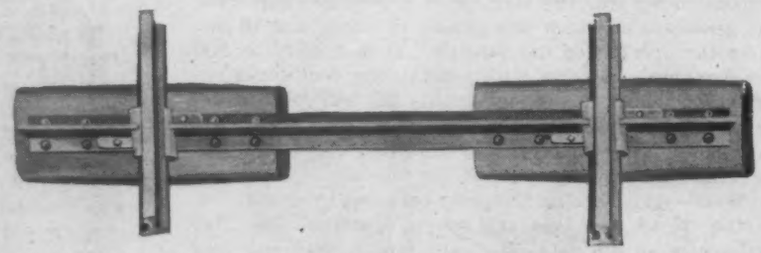


Fig. 1.—Plan View of the White Steel Concrete Tie with Sections of Rails in Position.

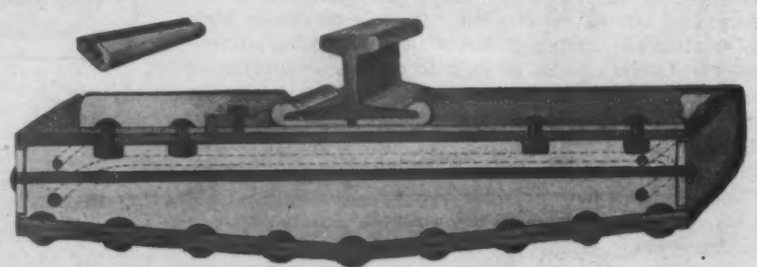


Fig. 2.—Sectional View of One Supporting Block, Showing Reinforcement and Rail Fastening Devices.

The advantages claimed for ties of this construction are that they will prevent rails from tipping or spreading; that they keep the track from drifting on sharp curves; that the noise as compared with wooden ties is much reduced; that their expense, taking into account cost of production and durability, would be less than that of wooden ties; that the factor of safety would be several times as great, and that the cost of keeping the track in condition would not be nearly as much as would be required where wood ties are used.

France, according to a Paris dispatch, is confronted with a big deficit in its revenues. The situation is rendered the more serious by the large number of pending socialistic projects involving heavy drafts on the treasury. The budget of 1909 necessitated the issue of $12,000,000 in treasury bonds, while the regular estimates for 1910 show a deficit of $45,600,000, without taking into consideration the proposed workmen's old-age and state railroad employees' pension proposals, which together involve a sum of $37,800,000 more. This situation complicates the proposal to revise the French tariff.

The Buffalo Foundrymen's Association has been working out a benefit and indemnity scheme for employees in the foundries of its members. The proposal is to pay full sick benefits for a year and partial benefits for two years longer. Accident benefits will be paid for two years. Accidental death benefits are from $200 to $600; natural death benefits, $100, and total disability benefits, $200 to $600. The above compare with total sick benefits of 13 weeks in one year as now paid by the Molders' Union, a death benefit of $100 to $200, and a total disability benefit of $100 to $200, after a membership of one year in the union.

The Railway Engineering and Maintenance of Way Association.

The tenth annual convention of the Railway Engineering and Maintenance of Way Association, held in Chicago March 15 to 20, was one of the largest gatherings in the history of this organization. There was no lack of live problems to engage the attention of members during the various business sessions, and the discussion of practical railroad practice by a body of men so well qualified by experience and training to handle such subjects naturally brought out much valuable and interesting information.

Friday was devoted to a trip of inspection to the plants of the Universal Portland Cement Company at Buffington, and the new steel works of the Indiana Steel Company at Gary, Ind. A special train was placed at the disposal of the association by the United States Steel Corporation, and a luncheon was served on the train between Buffington and Gary. On arrival at Gary the party left the train and boarded a train of flat cars which carried it through the plant, affording an excellent opportunity for a general survey of the works. Points of interest and plant operations were explained by attendants provided by the Illinois Steel Company. After leaving Gary a short stop was made at Kirk for an inspection of the roundhouse, machine shop and yards of the Chicago, Lake Shore & Eastern Railway.

The officers chosen for the ensuing year are as follows: President, William McNab, Grand Trunk Railway; second vice-president, W. C. Cushing, Pennsylvania Lines West; secretary, E. H. Fitch, re-elected; treasurer, W. S. Dawley, Missouri & North Arkansas Railroad; directors (for three years), A. H. Rudd, Pennsylvania Railroad, and A. W. Thompson, Baltimore & Ohio Railroad.

Owing to the lack of space for the display of goods and appliances the attendance of manufacturers at former meetings has been somewhat limited. Only such exhibits as could be crowded into the space afforded in hotel parlors and adjacent rooms have heretofore been shown, but this year the Chicago Coliseum was secured for this purpose, with the result that all of its extensive floor space was fully occupied with displays of railroad machinery, appliances and material. The exhibition was of such a comprehensive character that a list of the exhibitors would practically form a roster of manufacturers of railroad supplies and appliances. Several of the exhibitors had interesting machinery installations in operation.

General Electric Company Entertains Steel Mill Engineers.

On March 9, 10 and 11 the General Electric Company, at Schenectady, N. Y., held a sort of informal convention of steel mill engineers, which was attended by about 50 from all parts of the country. The purpose was to acquaint them with the design and construction of the company's apparatus which pertains particularly to steel mill work. The forenoon of the first day Major J. M. Andrews of the power and mining department presided, and after a few introductory remarks by him and David B. Rushmore, engineer of the same department, attention was given two papers. One by W. L. R. Emmett, engineer of the lighting department, was on the subject of steam turbines, and the other on centrifugal compressors, particularly as applied to steel mills, by L. C. Loewenstein of the engineering department of the company's Lynn works. That afternoon the party inspected the turbine shops and power station, which contains about 10,000 kw. in turbo-generators. An interesting demonstration was the starting of a 5000-kw. unit cold, the generator of which was phased in 1 min. and 10 sec. after the opening of the throttle. It is a 40-cycle, 800 rev. per min., machine, with a maximum continuous capacity of 7500 kw. Following this the switchboard department was inspected. A special car took the guests to Albany, where dinner was served at the Hotel Ten Eyck and the evening spent at the theatre.

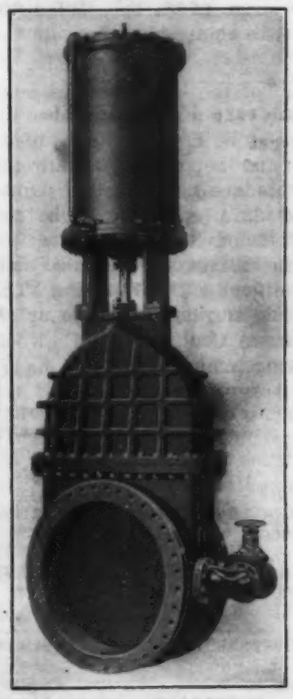
Wednesday morning the party returned by special car to the works and held the second session. The first paper was on the subject of mill type motors and was presented by K. A. Pauly, one of the engineers of the power and mining department. It dealt especially with the relative advantages of direct and alternating current motors. Lantern slides given with this paper illustrated the 6000 and 2000 hp. motors of General Electric make installed at the Gary plant of the Indiana Steel Company. (These motors were referred to in the paper by B. R. Shover printed in *The Iron Age*, March 11, 1909.) H. E. White of the controller engineering department next talked on the design and operation of automatic controlling systems. Luncheon followed in the works restaurant, and the afternoon was spent in observing practical demonstrations of operations described in the morning. Interesting in connection with these tests was the starting and reversing of motors, particularly the direct current machines, by double throw switches, throwing them directly on the line, with no resistence in series. A 50-hp. motor operating under full load in one direction was thrown directly on the line in the reverse direction several times at various loads and speeds. The controller shops were next visited. During the evening dinner was served at the Mohawk Club at Schenectady.

Dr. Charles P. Steinmetz opened the meeting Thursday morning and outlined the various systems of power distribution. He also covered briefly the lightning protection problem as solved by the aluminum cell arrester. Prof. E. F. Graighton continued the presentation of this subject, illustrating his remarks by a number of effective experiments with high frequency electro-static discharges, showing the method of protection from such discharges by the aluminum cell arresters. The same morning the party inspected a typical installation of these arresters on one of the company's high voltage transmission lines.

The Cost of Municipal Lighting.—Richmond, Ind., has been investigating the investment value of its municipal electric light plant. The problem has been studied several months by the Young Business Men's Club and its report has just been made. The cost of the plant originally was $259,508; cost of extensions, $30,067; cost of operation since the plant was installed, $226,117; total amount invested, $515,692. Total receipts have been $341,973, leaving the net investment to date $173,719. No deduction was made for depreciation of the plant, the investigators saying they did not know how the depreciation could be accurately fixed. The plant has been in operation seven years.

Kennedy 42-In. Hydraulically Operated Valves.

Three 42-in. hydraulic cylinder gate valves of the double disk parallel seat gate type were recently constructed for the Chicago Water Works new pumping station by the Kennedy Valve Mfg. Company, Elmira, N. Y. One of them is shown in the accompanying illustration. The hydraulic piston is connected by a piston rod to the main valve stem. When the valve is opened the first movement of the stem releases cams which have inclines in opposite directions on the faces in contact with similar inclines in opposite directions on the inside or back of the disks, and owing to the abrupt pitch of these inclines, the disks at once fall away from contact with their seats, thereby preventing dragging or grinding of the faces of the valve seats or disks in the opening of the valve.



A Large Kennedy Hydraulic Gate Valve.

In the closing of the valve these operations are reversed, the disks bearing the cams and cam rods close until opposite the ports, when the came rod is brought to a stop by lugs cast on the inside of the body of the valve, bringing into action the inclined surfaces of the cams and disks, and at once closing the valve without injuring the faces.

These valves are made with brass mounted trimmings and the hydraulic cylinder is lined with bronze. The aggregate weight of these valves is 15 tons.

A Peculiar Engineering Problem.—A paper before the Louisiana Engineering Society by John Klorer gives an account of the measures taken by the National Government for the extermination of the water hyacinth in Louisiana rivers. The plant was introduced in the South in 1884 as an exotic which readily made friends on account of its beautiful bloom and the ease of growing it. In time it found lodgment in streams and its exceedingly rapid growth has led in some instances to serious impediment to navigation, a thickly matted and connected subaqueous mass, with heavy growth above the surface, resulting in a very short period from a single plant. Various methods for removing the growth were tried. At first a stern wheel boat having at the forward end a conveyor which dipped into the water was employed. This carried the hyacinths up to a set of rollers, where they were crushed into a pulp, being then discharged on the bank by another conveyor. The method was too slow and expensive. At present spraying is resorted to, two Government boats being engaged in the work. Each is equipped with tanks for the boiling of a mixture of white arsenic, sal soda and water. This is sprayed on the plants, and as the latter are about 98 per cent. water, there is very little residue after they wilt down under the action of the poisonous solution. That the solution kills the plants absolutely has been proved in every case where the conditions were such as to prevent the introduction of new plants within the area sprayed.

The Morton B. Smith Company has taken additional space adjacent to its old quarters, at 243 Front street, New York. The office of the copper, brass and dross department is in the new building, 241 Front street.

The United States Steel Corporation's 1908 Report

Gross Sales and Earnings, $482,307,840.34. Decline from Previous Year, 36 Per Cent., or $274,706,927.34. Net Earnings, $91,847,710.57. Decline from Previous Year, 43 Per Cent., or $69,116,963.15.

The seventh annual report of the United States Steel Corporation, which covers the year ending December 31, 1908, presents a sharp contrast with the showing made for 1907, when both gross and net earnings were the largest in the history of this great institution. Gross sales and earnings declined $274,706,927.34, or 36 per cent., while net earnings declined $69,116,963.15, or 43 per cent. As compared with the previous leanest year, 1904, the net earnings were larger by $18,671,188.84. The report, which covers operating results of all the subsidiaries, including the Tennessee Coal, Iron & Railroad Company, enables the following comparisons to be made:

Income Account.

	1908.	1907.
Earnings	$91,847,710.57	$160,964,673.72
Less appropriations for the following purposes:		
Sinking funds on bonds of subsidiary companies	1,588,070.45	1,977,761.03
Depreciation and extinguishment funds	3,844,214.21	6,681,746.03
Extraordinary replacement funds	11,532,896.80	15,560,237.38
Special replacement and improvement funds	.....	3,500,000.00
Net earnings in the year	$74,882,529.11	$133,244,929.28
Deduct:		
Interest on U. S. Steel Corporation bonds outstanding	23,862,646.70	22,860,352.82
Sinking funds on U. S. Steel Corporation bonds—viz.:		
Installments	4,050,000.00	4,050,000.00
Interest on bonds in sinking funds	1,335,203.30	1,087,497.18
Various accounts and adjustments	Cr. 94,034.59	Dr. 681,515.52
Balance	$45,728,713.70	$104,565,563.76
Less dividends on preferred stock, 7 per cent	25,219,677.00	25,219,677.00
Dividends on common stock, 2 per cent	10,166,050.00	10,166,050.00
Surplus net income for the year	$10,342,986.70	$69,179,836.76
Appropriated for the following purposes:		
On account of expenditures made and to be made on authorized appropriations for additional property, new plants and construction, and for discharge of capital obligations	.....	35,500,000.00
Specifically set aside for authorized appropriations and expenditures, account construction Gary, Ind., plant	.....	18,500,000.00
Balance of surplus for the year	$10,342,986.70	$15,179,836.76

Production.

The production of all the subsidiary properties for the year 1908, in comparison with 1907, is shown in the subjoined table. In order to make the comparison upon relatively the same basis, the production figures of the Tennessee Coal, Iron & Railroad Company for the entire year 1907 have been including in the results shown below for that year:

Products.	1908.	1907.
Iron ore mined:	Tons.	Tons.
In Lake Superior ore region:		
Marquette Range	830,087	1,170,496
Menominee Range	1,021,598	1,625,358
Gogebic Range	1,078,025	1,425,457
Vermilion Range	927,206	1,724,217
Mesaba Range	11,272,397	16,458,273
In Southern ore region:		
Tennesse Coal, Iron & R. R. Company's mines	1,533,402	1,576,757
Totals	16,662,715	23,980,558
Coke manufactured:		
Beehive ovens	7,591,062	12,716,013
By-product ovens	578,869	828,751
Totals	8,169,931	13,544,764
Coal mined, not including that used in making coke	3,008,810	3,550,510
Limestone quarried	2,186,007	3,201,222
Blast furnace products:		
Pig iron	6,810,831	11,234,447
Spiegel	74,716	130,554
Ferromanganese and ferrosilicon	48,861	57,794
Totals	6,934,408	11,422,795
Steel ingot production:		
Bessemer ingots	4,055,275	7,556,460
Open hearth ingots	3,783,438	5,786,532
Totals	7,838,713	13,342,992
Rolled and other finished products for sale:		
Steel rails	1,050,389	1,879,985
Blooms, billets, slabs, sheet and tin plate bars	551,106	761,195
Plates	312,470	894,364
Heavy structural shapes	313,733	587,954
Merchant steel, skelp, hoops, bands and cotton ties	577,591	1,338,833
Tubing and pipe	654,428	1,174,629
Rods	93,406	126,095
Wire and products of wire	1,275,785	1,481,226
Sheets—Black, galvanized and tin plate	770,321	1,070,752
Finished structural work	403,832	719,887
Angle and splice bars and other rail joints	84,669	195,157
Spikes, bolts, nuts and rivets	40,252	67,991
Axles	24,057	189,006
Sundry steel and iron products	54,893	77,463
Totals	6,206,932	10,564,537
Spelter	28,057	31,454
Sulphate of iron	26,411	24,540
	Barrels.	Barrels.
Universal Portland cement	4,535,300	2,129,700

Statement of Surplus.

The net profits and surplus of the corporation and its subsidiary companies since April 1, 1901, are given as follows:

Capital surplus provided at date of organization		$25,000,000.00
Aggregate quarterly net profits	$560,938,617.19	
Less accrued profits on inter-company materials on hand in inventories	$10,371,803.25	
Net charges against profits made at close of fiscal years, not applicable to particular quarters	7,119,665.15	
Reserved for fund to cover possible failure to realize advanced mining royalties	2,800,000.00	
	20,291,468.40	
Balance of profits earned		540,647,148.79
		$565,647,148.79
Dividends paid on U. S. Steel Corporation stocks:		
Preferred, 5¼ per cent	$218,975,274.66	
Common, 1½ per cent	78,765,032.50	
		297,740,307.16
Leaving a surplus of		$267,906,841.63
Of the foregoing surplus there has been appropriated for payment of construction and capital expenditures and special charges, per sixth annual report		162,827,364.16
Balance of surplus, December 31, 1908, exclusive of subsidiary companies' inter-company profits in inventories		$105,079,477.47
Undivided surplus of subsidiary companies on December 31, 1908, representing profits accrued on sales of materials to other subsidiary companies and on hand in latter's inventories		28,335,736.70
Total		$133,415,214.17

This statement shows a gain of $10,769,970.55 over the surplus at the close of 1907.

Employees and Pay Rolls.

The average number of employees in the service of all companies during the fiscal year 1908, in comparison with 1907, was as follows:

Employees of	1908. Number.	1907. Number.
Manufacturing properties	118,557	151,670
Coal and coke properties	17,164	21,447
Iron ore properties	13,135	16,462
Transportation properties	14,165	18,133
Miscellaneous properties	2,190	2,468
Totals	165,211	210,180
Total annual salaries and wages	$120,510,829	$160,825,822

Inventories.

At December 31, 1908, the aggregate book valuation of the inventories of all the properties equaled $143,179,629, in comparison with a total at close of the preceding year of $136,188,874, an increase of $6,990,755. This increase is attributable chiefly to the larger quantities on hand at close of 1908 or iron ore, pig tin and spelter. At December 31, 1908, the tonnage of iron ore on hand in stock piles at mines, at furnaces and at lower lake docks was 24 per cent. greater than at close of the preceding year. The average price at which the ore is inventoried is, however, somewhat less, as shown by an increase of only 13.5 per cent. in valuation against an increase of 24 per cent. in quantity.

Inventories were taken on the basis of actual purchase or production cost of materials to the respective companies holding the same, unless such cost was above the market value on December 31, 1908, in which case the market price was used. Inventory valuations are believed to be conservative, the aggregate valuation for all raw, partly finished and finished materials produced within the organization being below the market price on December 31, 1908. Inventory valuations do, however, include the profits on materials embraced in inventories which have been purchased by one subsidiary company from another; but, as shown by the general balance sheet, such profits are segregated and carried in a specific surplus account, and will not be included in the reported earnings of the entire organization until such profits shall have been converted into cash or a cash asset to the organization. The specific surplus account referred to is, therefore, practically a guarantee fund for these profits so locked up in inventories pending realization in cash.

The following is a general classification of the inventory valuations at December 31, 1908, in comparison with December 31, 1907:

	1908.	1907.
Ores	$65,783,299	$58,984,718
Pig iron, scrap, ferro and spiegel	6,774,830	6,417,224
Coal, coke and other fuel	2,574,738	2,697,728
Pig tin, spelter, copper, nickel, aluminum and dross and skimmings	5,468,428	3,504,867
Limestone, fluxes and refractories	1,771,515	2,243,268
Rolls, molds and stools	4,448,411	4,331,139
Manufacturing supplies, stores and sundry items not otherwise classified	10,823,629	11,569,216
Ingots—steel	750,562	451,552
Blooms, billets, slabs, sheet and tin plate, bars, &c.	6,366,959	6,416,619
Wire rods	733,357	709,060
Skelp	1,040,720	1,212,483
Finished products	25,999,591	24,868,713
Mining supplies and stores (for ore and coal properties)	3,147,232	3,101,742
Railroad supplies and stores	2,972,409	2,979,707
Merchandise of supply companies	607,191	797,115
Material, labor and expense locked up in bridge and structural contracts $13,747,615 Less bills rendered on account 13,242,518	505,097	2,294,103
Stocks abroad and on consignment	1,254,993	1,806,138
Material in transit	2,156,668	1,803,482
Totals	$143,179,629	$136,188,874

Capital Expenditures.

The expenditures made during the year by all companies and properly chargeable to capital account, for the acquisition of additional property and construction, less credits for property sold, equaled the aggregate sum of $49,422,697.42. All of the above expenditures comprehend only actual additions and extensions to the plants and properties. The capital expenditures are classified by property groups as follows:

Gary plant, the city of Gary, and terminal railroad work adjacent thereto		$18,733,841.04
Other properties, exclusive of Tennessee Coal, Iron & Railroad Company:		
Manufacturing properties		14,610,517.46
Coal and coke properties		1,938,401.65
Iron ore properties		3,103,965.93
Transportation properties		7,238,627.29
Miscellaneous properties		336,351.05
Tennessee Coal, Iron & Railroad Company's properties:		
Manufacturing properties	$2,399,266.83	
Ore, coal and limestone properties	831,474.41	
Birmingham Southern Railway.	139,737.57	
Sundry real estate	90,514.19	
		3,460,993.00
Total for the year 1908		$49,422,697.42

The funds for the payment of the expenditures made during the year 1908, as above, have been provided from the following sources, viz.:

From bonds disposed of and assumed during the year for account construction outlays	$1,542,000.00
From depreciation, replacement and sinking funds appropriated for payment of expenditures included therein	2,604,158.87
From general construction fund appropriated from surplus net income	3,241,382.31
From special construction fund appropriated from surplus net income for account Gary plant and property	18,848,472.19
And the balance has been advanced from the general surplus account as an investment thereof in the property account	23,186,684.05
Total	$49,422,697.42

In addition to the foregoing amount of expenditures made during the year for additional property and construction, there was expended the gross sum of $7,453,158.33 for stripping the overburden from ore bodies preliminary to mining ore from open pits, for additional logging equipment, &c. Against this charge was credited $1,813,611 for expenses of foregoing character absorbed in operating expenses for 1908 for mining ore and timber logged, leaving a net increase during the year in the amount invested in stripping outlays and logging equipment of $5,639,547.33. The total investment at December 31, 1908, in these operations and carried in property account equals $15,936,929.20, all of which will be absorbed in operating expenses when respectively the ore thus uncovered is removed and timber is cut.

Since April 1, 1901 (the date of organization of the United States Steel Corporation), to January 1, 1909, the amount expended by all companies for additional property and construction (including expenditures by Tennessee Coal, Iron & Railroad Company from November 1, 1907, only) equaled $255,497,987.37.

Some of the principal additions to the properties of the subsidiary companies, on account of which expenditures were made during the year 1908, are as follows:

Carnegie Steel Company.—Work completed during the year: Homestead Steel Works—New 72-in. plate mill. Carrie Furnaces—Two new blast furnaces. Duquesne Works—Two new blast furnaces (some expenditures yet to be made). Ohio Works—Two new blast furnaces; 12 new open hearth furnaces complete. Waverly Works—New storage warehouse and shops; additions to structural and bar warehouses. Purchase from the Schoen Steel Wheel Company of plant and equipment for the manufacture of pressed and rolled steel wheels.

Work in progress: Duquesne Works—New open hearth plant, comprising 18 furnaces, of which 10 are now completed; electric power station, including equipment; gas cleaning plant. Homestead Works—Additional facilities at 23, 35 and 40 in. structural mills. Carrie Furnaces—Enlargement of electric power plant to supply power for extension to cement plant No. 5. Ohio Works—New blooming mill; new bar and hoop mills.

Illinois Steel Company.—Work completed during the year: South Works—Gas cleaning plant and equipment at electric station; two additional steam turbine engines serving two 1000-kw. generators; new coke storage yard at Stockton. Joliet Works—By-product coking plant; this addition includes 280 coke ovens of the Kopper type, having a daily output of over 2000 tons of coke. North Works—New paint mill. Purchase of 1065.18 acres limestone land in Illinois, Indiana and Michigan.

Work in progress: South Works—Extension of A. C. electric station; two additional gas driven blowing engines at furnaces 5-8.

Cement Plants.—Work in progress: Extension of cement plant No. 5 at Universal, Pa., increasing daily capacity from 4000 to 10,000 bbls.

Lorain Steel Company.—Johnstown Works—Enlargement of

plant for manufacture of frogs, crossings, street and steam railroad special work. Although the additions will about double the capacity of the plant only one-half of the cost is charged to capital account. The work was practically completed at close of the year.

National Tube Company.—Work completed during the year: National Works—The enlarging and rebuilding, which has been in progress since 1903, was substantially completed and the increased facilities put in operation. Of the total cost, only one-third has been charged to capital account, the balance of the cost being paid directly from funds provided out of earnings. The improvement consists of one additional blast furnace, a new metal mixer, increasing capacity of converter works, rebuilding and increasing capacity of rolling mills, tube and pipe mills and installing improved and additional power and water supply plants. The productive capacity of the new plant over the old is increased about 55 per cent. in pig iron, 66 per cent. steel and 35 per cent. in finished tubular product. Lorain Works—New galvanizing plant; new equipment for making converse joints and Matheson joint pipe. Work in progress: New open hearth plant, six 50-ton furnaces (four furnaces completed); two additional heating furnaces for No. 4 skelp mill, including four gas producers and extension to heating furnace building.

Shelby Steel Tube Company.—Work completed during the year: Standard Works, Ellwood City, Pa.—The rebuilding and enlargement, commenced in 1906, was completed during the year. One-half of the cost only of the new work has been charged to capital account, as the new plant was constructed with the idea of covering capacity of several smaller outlying plants ultimately to be abandoned. The new plant not only preserves this tonnage, but also materially increases the annual productive capacity of seamless tubes.

American Steel & Wire Company.—Work completed during the year: Newburgh Wire Works—Additional cold rolling machinery. Cuyahoga Works—New mill for rolling flats, including flat, rod, bale tie and cold rolling mills and necessary buildings and equipment. H. P. Works—Six American felt roofing nail machines. Waukegan Works—Additional fine wire blocks. Rockdale Works—Five poultry netting machines; three American field fence machines. Anderson Works—Purchase of fence machine patents and machinery. Braddock Works—Additional wire drawing blocks. Allentown Works—New wire mill engine and wire drawing equipment. Trenton Works—Additional equipment for manufacture of wire rope and high grade wires. River Division—Ten additional steel barges. Worcester Works—Additional buildings and equipment for the manufacture of insulated wire and cables; additional paper cable equipment; additional rope machinery; extension to building and additional equipment in spring department.

Work in progress: Cuyahoga Works—New cold rolling plant. Consolidated Works—Two American field fence machines. Waukegan Works—Enlarging spring mill building; new spring machinery; testing machines, tools, &c.; 16 Miller bale tie machines; three new P. & R. fence machines. Rockdale Works—Seven poultry netting machines; two American P. & R. fence machines; plant for galvanizing netting. DeKalb Works—One concrete fabric machine. Braddock Works—140 new wire drawing blocks. Trenton Works—Additional rope machinery. Worcester, South Works—Five P. & R. fence machines. Worcester, North Works—Electro-Galvanizing equipment; five P. & R. fence machines; machine for manufacture of paddock fence. Worcester Rope Works—Additional machinery for manufacture of flat strand rope. New Haven Works—New rope factory and equipment.

American Sheet & Tin Plate Company.—Work completed during the year: New Philadelphia Works—One additional jobbing and one sheet mill. Scottdale Works—New galvanising department. Guernsey Works—Four additional sheet mills. Canton Foundry—New furnace, including casting pit, yard crane and crane runway.

Work in progress: New Philadelphia Works—Equipment for producing pickled finished products.

American Bridge Company.—Work completed during the year: Elmira Plant—Construction of a new bridge plant having an annual capacity of 40,000 tons of finished structural work. The new plant is of modern type in every particular. Only 40 per cent. of the cost is charged to capital account.

Union Steel Company.—Work in progress: Donora Works—Four new P. & R. fence machines; one stranding machine.

Clairton Steel Company.—Work completed during the year: Clairton Works—New 14-in. structural mill; new steam driven generator, engine, &c., in power plant; one 18,000,000-gal. steam turbine driven centrifugal pump. Work in progress: New 22-in. structural mill.

Tennessee Coal, Iron & Railroad Company.—Ensley Works—The installation of a new open hearth steel plant and the rebuilding and enlargement of the blooming and rail mill, all of which work was commenced in 1907, were completed during 1908, as were also two additional 60-ton open hearth furnaces. Other additions were completed and work prosecuted on construction in progress at the close of the year, as follows: Work completed during the year: New 5,000,000-gal. reservoir for steel works' water supply; new pig casting machine; new pattern storage building. Work in progress: Seven hot stoves for furnaces 1 and 2; new boiler plant, furnaces 1-4; new 600-ton hot metal mixer; ore storage yard, ore bridge and equipment; new chemical laboratory; new electrical repair shop; new water purifying plant; new stacks and cast houses, furnaces 1, 2 and 3.

Coal and Coke Properties.—There were acquired during the year by purchase 28.48 acres of coking and coal land and 340.38 acres of surface land, located in the Connellsville region. In the same region there was expended $415,425.23 for the completion of four beehive oven coke plants, including all equipment and accessory works for same, together with additional tenement houses, the construction of which was begun in 1907. These plants are located at Phillips, 400 ovens; Collier, 400 ovens; Dearth, 250 ovens; Ronco, 350 ovens. At mine No. 5 of the River Coal Company, near Brownsville, there were constructed 100 rectangular coke ovens complete with all machinery and equipment. Work was begun during the year in opening and developing new coal mines in the Connellsville region located at Palmer, Ralph, Filbert and Sarah. There was purchased during the year the outstanding one-half interest in the Juniata Coke Company. This company owned 40 acres of unmined coal, 128 acres of surface and 250 beehive ovens, with tenements, &c.

Iron Ore Properties.—In the Canisteo District work was started on a new permanent concentrating plant located at Coleraine, Minn. (to cost completed about $1,500,000) to treat certain of the ores mined on Western Mesaba Range. The addition includes all necessary buildings, machinery and railroad track system. Expenditures were made during the year for more important construction and development work at various mines.

Employees' Stock Subscriptions.

In January, 1909, there was offered to the employees of the corporation and of the subsidiary companies the privilege of subscribing for 18,000 shares of preferred stock and 15,000 shares of common stock at the price of $110 per share for the former and $50 per share for the latter. The conditions attached to the offer and subscription were substantially the same as those under which preferred stock had been offered in each of the previous six years, excepting as to the subscription price. Moreover, because of the lower price at which the common stock was offered, as compared with the price for the preferred, the special bonus to be paid subscribers who retain their stock for five years was fixed for the common shares at one-half the amount of bonus which is to be received by holders of preferred shares.

Subscriptions were received from 19,192 employees for an aggregate of about 23 per cent. in excess of the amount of stock offered. Subscriptions were reduced pro rata, except that employees subscribing for stock equaling a value at the subscription price of $110 or less per employee were allotted the full amount subscribed for. The total number of shares allotted was 18,000 of preferred and 15,318 of common stock. At December 31, 1908, there were 22,960 employees who had purchased preferred stock under offers made by the corporation, and who on that date either held the certificates of stock or were making monthly payments on account of the purchase price thereof.

Special Construction Fund for the Gary Plant.

The appropriations made from surplus net income in previous years for account of this fund, as shown in annual report for 1907, amounted to the aggregate sum of $50,000,000. Advances have been made from this fund to cover expenditures for the acquirement of real estate and construction work at the Gary plant, the building of the city of Gary, and terminal railroad work adjacent thereto, as follows: Year ending December 31, 1906, $4,632,202.11; year ending December 31, 1907, $19,316,555.27; year ending December 31, 1908, $18,848,472.19; total, $42,797,229.57, leaving a balance unexpended December 31, 1908, of $7,202,770.43. A general classification of the total amount of expenditures made to January 1, 1909, in connection with the above work is as follows:

Real estate, less credits for land sold (a net of about 9000 acres), and for development and construction work in the city of Gary	$10,531,389.53
Construction of the manufacturing plant	27,439,263.40
Terminal railroad work adjacent to and in connection with the manufacturing plant	4,826,576.64
Total	$42,797,229.57

Of the unexpended balance of $7,202,770.43 remaining at December 31, 1908, in the Gary construction fund, $2,537,507.23 was invested in salable securities pending the actual requirement of the money. The balance of the fund is in the cash assets of the organization.

General Balance Sheet.

The following condensed balance sheet exhibits the combined assets and liabilities of the United States Steel Corporation and of the several subsidiary companies, based on the valuations at which the stocks of the subsidiary companies and the Carnegie Company bonds were acquired by the Steel Corporation, but liabilities from one company to another are omitted from both liabili-

ties and assets. The outstanding capital stocks of subsidiary companies which are not held by the United States Steel Corporation show a net decrease during the year of $121,507.50. This results from the acquirement during the year by the corporation of an additional $158,405, par value, of Tennessee Coal, Iron & Railroad Company's stock, less the issue to outside holders of $36,897.50 of that company's stock purchased by them under subscriptions made prior to the date at which a controlling interest in the Tennessee Company's stock was acquired by the corporation:

Assets.

Property account (properties owned and operated by the several companies):		
Balance of this account as of December 31, 1907	$1,435,540,068.50	
Adjustments during 1908 in the foregoing balance	Cred. 114,843.46	
Expended for additional property and construction in 1908	49,422,697.42	
	$1,484,847,922.46	
Less charged off to the following accounts:		
Bond sinking funds	$660,000.00	
Depreciation, extinguishment and replacement funds	3,892,342.49	
Funds provided from surplus net income for payment of capital expenditures	22,089,854.50	
	26,642,196.99	
	$1,458,205,725.47	
Expenditures for stripping and development at mines, and investment in structural erection and logging plants:		
Balance at December 31, '07	$10,297,381.87	
Net increase during the year 1908	5,639,547.33	
	15,936,929.20	
		$1,474,142,654.67
Deferred charges to operations:		
Payments for advanced mining royalties, exploration expenses and miscellaneous charges, chargeable to future operations of the properties.	$9,106,666.18	
Less fund reserved from surplus to cover possible failure to realize advanced mining royalties	2,800,000.00	
		6,306,666.18
Investments:		
Outside real estate and investments in sundry securities, including real estate mortgages and land sale contracts		3,082,999.57
Sinking and reserve fund assets:		
Cash resources held by trustees on account of bond sinking funds ($38,086,500 par value of redeemed bonds held by trustees, not treated as an asset.)	$543,961.90	
Contingent fund and miscellaneous assets	1,902,755.53	
Insurance fund assets (at cost)	5,009,555.95	
Depreciation and extinguishment fund assets (at cost)	13,269,254.28	
Investments (at cost) for special construction fund for Gary plant	2,537,507.23	
		23,263,034.89
Current assets:		
Inventories	$143,179,628.56	
Accounts receivable	34,708,118.43	
Bills receivable, customers	6,201,532.12	
Agents' balances	711,043.51	
Sundry marketable bonds and stocks	4,823,800.16	
Loans on collateral	50,000.00	
Cash in hand and subject to check	49,548,053.46	
		239,222,176.24
Grand total		$1,746,017,531.55

Liabilities.

Common stock	$508,302,500.00	
Preferred stock	360,281,100.00	
		$868,583,600.00
Capital stocks of subsidiary companies not held by U. S. Steel Corporation (par value)		640,302.50
Bonded and debenture debt:		
Corporation 50-year 5 per cent. bonds	$303,957,000.00	
Corporation 10-60 year 5 per cent. bonds	200,000,000.00	
	$503,957,000.00	
Less redeemed and held by trustees of sinking funds	28,690,500.00	
Balance outstanding	$475,266,500.00	
Subsidiary companies' bonds (guaranteed by Corporation)	$47,769,000.00	
Subsidiary companies' bonds (not guaranteed by Corporation)	79,557,342.85	
	$127,326,342.85	
Less redeemed and held by trustees of sinking funds	9,396,000.00	
Balance outstanding	117,930,342.85	
Debenture scrip, Illinois Steel Company	34,366.66	
		593,231,209.51
Mortgages and purchase money obligations of subsidiary companies:		
Mortgages	$1,634,324.78	
Purchase money obligations	2,527,655.75	
		4,161,980.53
Current liabilities:		
Current accounts payable and pay rolls	$20,858,014.34	
Bills payable	840,500.00	
Special deposits or loans due employees and others	923,845.31	
Accrued taxes not yet due	3,577,024.09	
Accrued interest and unpresented coupons	7,986,038.12	
Preferred stock dividend No. 31, payable March 1, 1909	6,304,919.25	
Common stock dividend No. 21, payable March 30, 1909	2,541,512.50	
		43,031,853.61
Total capital and current liabilities		$1,509,648,946.15
Sinking and reserve funds:		
Sinking, depreciation and replacement funds	$42,546,313.67	
General construction fund for authorized appropriations	682,432.65	
Special construction fund for account Gary plant	7,202,770.43	
Contingent and miscellaneous operating funds	8,722,064.27	
Insurance funds	5,725,778.47	
		64,879,359.49
Bonds sinking funds with accretions (represented by redeemed bonds not treated as assets, the interest on which is currently added to the sinking fund)		38,074,011.74
Undivided surplus of Corporation and subsidiary companies:		
Capital surplus provided in organization	$25,000,000.00	
Balance of surplus accumulated by all companies from April 1, 1901, to December 31, 1908	80,079,477.47	
Total surplus exclusive of subsidiary companies' inter-company profits in inventories	$105,079,477.47	
Undivided surplus of subsidiary companies, representing profits accrued on sale of materials and products to other subsidiary companies and on hand in latter's inventories	28,335,736.70	
		133,415,214.17
Grand total		$1,746,017,531.55

General Profit and Loss Account.

The condensed general profit and loss account for the year ending December 31, 1908, is as follows:

Gross receipts—Gross sales and earnings		$482,307,840.34
Operating charges:		
Manufacturing and producing cost and operating expenses, including ordinary maintenance and repairs and provisional charges for depreciation	$384,700,283.73*	
Administrative, selling and general expenses, and employees' bonus funds (not including general expenses of transportation companies)	12,932,696.13	
Taxes	5,361,160.20	
Commercial discounts and interest	2,707,181.06	
	$405,701,321.12	
Less amount included in above charges for provisional reserves for depreciation now deducted for purpose of showing the same in separate item of charge, as see below	16,965,181.46	388,736,139.66
Balance		$93,571,700.68
Sundry net manufacturing and operating gains and losses, including idle plant expenses, royalties received, depreciation in inventory valuations, &c.	$628,194.92	
Rentals received	860,610.13	1,488,805.05
Total net manufacturing, producing and operating income before deducting provisional charges for depreciation		$95,060,505.73
Other income:		
Net profits of properties owned, but whose operations (gross revenue, cost of product, expenses, &c.) are not included in this statement	$520,641.23	
Interest and dividends on investments and on deposits, &c.	3,777,438.73	4,298,079.96
Total income		$99,358,585.69
Interest charges:		
Interest on bonds and mortgages of the subsidiary companies	$7,189,491.50	
Interest on purchase money obligations and special deposits or loans of the subsidiary companies	211,713.68	7,401,205.18
Balance, being the aggregate earnings of the several companies for the year before deducing provisional charges for depreciation		$91,957,380.51
Less net balance of profits earned by subsidiary companies on sales made and service rendered account of materials on hand at close of year in purchasing companies' inventories, and which profits have not yet been realized in cash from the standpoint of a combined statement of the business of the corporation and subsidiary companies		109,669.94
Earnings for the year 1908, per income account		$91,847,710.57
Less appropriations for various depreciation funds		16,965,181.46
Net earnings in the year 1908		$74,882,529.11

* Includes charges for ordinary maintenance and repairs, approximately $27,000,000.

Earnings by Months and Quarters.

Following is a table showing earnings by months and quarters from January 1, 1906, to December 31, 1908:

Month.	1906.	1907.	1908.
January	$11,856,375.42	$12,838,703.25	$5,052,743.24
February	10,958,275.20	12,145,814.95	5,709,427.64
March	13,819,839.50	14,137,973.85	7,466,834.23
First quarter	$36,634,490.12	$39,122,492.05	$18,229,005.11
April	$12,581,901.80	$14,600,837.97	$6,761,680.59
May	14,041,601.28	16,056,832.06	6,021,278.73
June	13,501,529.84	14,846,034.82	7,482,796.54
Second quarter	$40,125,032.92	$45,503,704.85	$20,265,755.86
July	$12,242,098.07	$13,804,167.34	$8,599,630.15
August	13,158,860.10	15,279,172.67	9,152,311.13
September	12,713,666.08	14,720,945.15	9,354,333.42
Third quarter	$38,114,624.25	$43,804,285.16	$27,106,274.70
October	$14,984,925.75	$17,052,210.70	$9,415,667.63
November	13,482,464.58	10,467,252.60	8,756,728.90
December	13,282,735.56	5,014,728.36	8,074,278.37
Fourth quarter	$41,750,125.89	$32,534,191.66	$26,246,674.90
Total for year	156,624,273.18	160,964,673.72	91,847,710.57

Maintenance, Renewals and Replacements.

The expenditures made by all companies during the year 1908 for maintenance and renewals, including the relining of blast furnaces, and for extraordinary replacements, in comparison with expenditures for the same purposes during the preceding year, were as follows:

	1908.	1907.	Decrease.
Ordinary maintenance and repairs	$27,328,955.79	$35,503,668.32	$8,174,712.53
Extraordinary replacements	10,729,603.92	20,324,584.80	9,594,980.88
Totals	$38,058,559.71	$55,828,253.12	$17,769,693.41

The decrease, as compared with preceding year, in the outlays for ordinary or current maintenance and repairs, is attributable entirely to the fact that the plants and properties were operated to a much lesser extent than in 1907. Accordingly fewer repairs were necessary. Advantage was taken, however, of the shut down during the year of many plants to make such repairs as it is neither practical nor economical to prosecute while the mills are in operation.

The expenditures for extraordinary replacements show a considerably larger relative decrease as compared with 1907 than do those for current maintenance and repairs. This is attributable in part to the fact that in the two previous years rehabilitation and modernizing of the properties was conducted on a very liberal scale and in part to the fact that expenditures of this character are not made from year to year on relatively the same basis that the properties are operated. At the close of the year the plants and properties collectively speaking were in first-class physical condition.

The entire amount of the foregoing expenditures was charged to current operating expenses and to replacement funds reserved from earnings.

General Statement to Stockholders by Chairman Gary and President Corey.

The depression which began in the fall of 1907 in nearly all lines of industry throughout the United States continued during the year 1908 and was severely felt in the steel and iron trade. The extent to which these changed conditions affected the business of the subsidiary companies of the organization is shown by the decreased earnings and output in 1908, as compared with similar results for the preceding year. The production of rolled and other finished steel products for sale to customers outside of the organization was in 1908 only 6,206,032 tons, the lowest for any calendar year since the United States Steel Corporation has been organized. The falling off in business compared with the year 1907 was more marked in the domestic than in the export trade, as shown by the following figures of shipments of all kinds of products to customers:

			Decrease.	
Domestic.	1908.	1907.		%
Rolled and other finished steel products	5,505,090	9,477,491	3,972,401	41.9
Pig iron, spiegel, ferro and scrap	254,925	417,514	162,589	38.9
Iron ore, coal and coke	1,314,295	2,310,108	995,813	43.1
Sundry materials and by-products	28,146	28,990	844	2.9
Total tons all kinds of material, except cement	7,102,456	12,234,103	5,131,647	41.9
Cement, barrels	4,138,757	2,322,875	1,815,882*	...
Export:				
Rolled and other finished steel products	777,276	1,014,014	236,738	23.3
Pig iron and scrap	21,898	.....	21,898*	...
Sundry materials and by-products	232	68	164*	...
Total tons all kinds of materials	799,406	1,014,082	214,676	21.2

* Increase.

The export business constituted about 12.4 per cent. of the entire shipments of rolled and other finished steel products. The average prices received for exported material of all kinds, while somewhat lower than was received in the preceding year, compared very favorably with the average for the domestic business. The advantage to both the manufacturer and the employees of the permanent establishment of a fair volume of foreign trade, especially during periods of lesser activity in the

United States, was most forcibly illustrated during 1908. An essential feature necessary to the successful conduct of a foreign trade, and one that can be obtained only by remaining continuously in the business, is that the manufacturer, his grades of goods and his methods shall become known to the consumers. Otherwise the use of the foreign market is largely limited to the so-called "dumping" process, which is only accomplished at profitless prices.

In the domestic trade the prices received for steel products shipped in 1908 averaged substantially the same as those received in the preceding year.

EXPENDITURES FOR NEW PROPERTY AND IMPROVEMENTS.

The expenditures made by the subsidiary companies during the year for additional property, construction and improvements, including outlays for account of the Gary plant in Indiana and for the Tennessee Coal, Iron & Railroad Company were as follows:

Additional property and construction:	
For all properties except those noted below	$27,227,863.38
For Gary plant	18,733,841 04
For Tennessee Coal, Iron & Railroad Company.	3,460,993.00
Improvements and extraordinary replacements	10,729,603.92
Total	$60,152,301.34

Generally speaking, the outlays were made in the continuation and completion of additions and improvements which had been authorized and were under way at the time of the commencement of the industrial depression which followed the financial panic in the fall of 1907. Some new work of considerable magnitude was, however, authorized during the year, principally by the coke properties, to provide the added fuel requirements called for by the additional furnaces completed and nearing completion at Gary, Carrie, Duquesne and Youngstown by the iron ore properties in opening and developing mines in order to supply the increased ore tonnage required by these additional furnaces; the increase in the lake transportation facilities by the purchase of two additional 11-000-ton ore steamers, and by the Tennessee Coal, Iron & Railroad Company in opening new ore mines and rehabilitating and enlarging the capacity of its blast furnaces. There was also commenced near the close of the year an extension of the cement plant at Universal, Pa., which will increase the daily capacity of this plant from 4000 to 10,000 barrels. With the completion of this extension the annual capacity of the cement plants operated by the Universal Portland Cement Company (a subsidiary company) will be 8,200,000 barrels of Universal Portland cement.

Since the organization of the corporation there have been expended for additional property and construction (exclusive of the cost at date of acquirement of Union and Clairton steel companies, and of the stock of Tennessee Coal, Iron & Railroad Company the following amounts:

Gary plant, including the building of the city of Gary and terminal railroad work	$42,797,229.57
Manufacturing properties (including expenditures by the corporation)	116,155,559.41
Coke and coal properties	20,056,764.27
Iron ore properties	23,120,539.17
Transportation properties	49,026,895.81
Miscellaneous properties	4,340,999.14
Total capital expenditures	$255,497,987.37
During the same period there was expended for extraordinary replacements and betterments the sum of	92,534,952.12
Total	$348,032,939.49

On account of the foregoing expenditures there were issued and disposed of bonds, mortgages and purchase obligations of subsidiary companies to the amount of $39,172,863.37, leaving a balance of expenditure of $308,860,076.12, the funds for the payment of which have been provided from the current earnings and surplus of the organization. There have also been paid off through operation of the bond sinking funds, and by discharge upon their maturity, $85,871,019.36 of bonds, mortgages and other capital obligations which were outstanding at the time of organization of the corporation.

At the close of the year there were unexpended on appropriations authorized for construction and improvement purposes the following sums: For all properties exclusive of Gary, $28,200,000; for Gary, $22,500,000; total, $50,700,000. It is estimated that about 75 per cent. of this total will be expended during the year 1909.

ANNUAL PRODUCTIVE CAPACITY.

The expenditures for new property, construction and improvements as above have greatly strengthened and enlarged the properties in every respect. The subjoined table shows the comparative normal annual productive capacity of basic manufactured products at April 1, 1901, and January 1, 1909. The facilities of the iron ore, coke and coal and transportation properties have been also increased contemporaneously with the enlargement of and additions to the manufacturing properties; and large additions have likewise been made to the reserves of unmined ore and coal. In the capacity figures at January 1, 1909, there are included only such units of the Gary plant as are ready for operation at the date of writing of this report:

	Capacity April 1, 1901.	Increases since April 1, 1901. By purchase of Union and Clairton companies.	By purchase of Tennessee Coal, Iron & Railroad Company.	Due to additions and improvements made by the companies after their acquirement by U. S. Steel Corporation.	Capacity January 1, '09.
	Tons.	Tons.	Tons.	Tons.	Tons.
Blast furnace products	7,440,000	1,228,000	1,000,000	5,322,000	14,990,000
Steel ingots	9,425,000	1,258,000	500,000	5,887,000	17,070,000
Rolled and other steel and iron products for sale	7,719,000	1,103,000	400,000	3,678,000	12,900,000
	Barrels.			Barrels.	Barrels.
Cement	500,000	.....	.....	5,600,000	6,100,000

Notwithstanding the increases in capacity by purchase of other companies and by extensions completed, as indicated, the subsidiary companies of the corporation have not in the aggregate retained their relative position in the trade. Based on the figures of actual production of pig iron and steel (the basic products), the situation in 1908 as compared with 1901 in respect of the proportion of the iron and steel business controlled by the subsidiary companies of the corporation and by all other manufacturers is as shown below. The percentages for 1908 for subsidiary companies of this corporation include, of course, the output by the Tennessee Coal, Iron & Railroad Company, which in that year was 3 2-10 per cent. of the company's entire production of pig iron, 4 4-10 per cent. of the entire production of open hearth steel, but only 2 5-10 per cent. of the total production of open hearth and Bessemer steel ingots:

	1901.	1908.
Pig iron:		
Percentage produced by subsidiary companies of the corporation in each of the years named	43.2	43.5
Percentage produced by all other manufacturers	56.8	56.5
	100.0	100.0
Steel ingots:		
Percentage produced by subsidiary companies of the corporation in each of the years named.		
Bessemer steel	70.1	66.3
Open hearth steel	58.8	48.6
Total by U. S. Steel Corporation interests	66.2	56.4
Percentage produced by all other manufacturers:		
Bessemer steel	29.9	33.7
Open hearth steel	41.2	51.4
Total by all other interests	33.8	43.6
	100.0	100.0

During the last 18 months the subsidiary companies of the corporation have increased their open hearth steel

capacity by 3,052,000 tons. This includes 500,000 tons of steel capacity controlled by the Tennessee Coal, Iron & Railroad Company. During the same period the Bessemer steel capacity of the subsidiary companies was reduced (by reason of substitution of open hearth for Bessemer) by 746,000 tons, leaving a net increase in the total steel capacity of 2,306,000 tons, of which 1,806,000 tons resulted from enlargements of old plants and the new plant at Gary, and 500,000 tons by the addition of the Tennessee Coal, Iron & Railroad Company.

THE GARY PLANT.

All of the construction work account of the manufacturing plant at Gary, Ind., the city of Gary and the terminal railroad work adjacent thereto was carried on continuously and actively during the past year.

At the manufacturing plant four of the blast furnaces have been completed, three being now in operation. The first pig iron was produced December 21, 1908. The remaining four blast furnaces now under construction will be completed during the year 1909. Of the 56 open hearth furnaces authorized to be constructed, one unit of 14 furnaces is completed, another unit of 14 furnaces is nearing completion and a third unit of 14 furnaces will be completed during the current year. Several open hearth furnaces in the first unit are now in operation, the first steel having been produced February 2, 1909. The rail mill is completed and is now in operation, the first rail having been rolled January 24, 1909, from steel ingots supplied from other plants. The billet mill will be completed by July 1, 1909. Construction work on the 160 in. plate mill, on a group of merchant mills and on the car axle plant is well under way, the expectation being that all of these finishing mills will be completed and in operation before the close of the present year. A full complement of mechanical shops, including machine shop, foundry, pattern shop, blacksmith shop and roll shop, together with necessary equipment and machinery, has been completed, and the several shops are now in operation, furnishing economical facilities for aiding in the general construction work at and the operation of the plant. The vessel slip, together with docks, including ore handling apparatus, have been completed. The ore docks have a capacity for handling and storing 2,000,000 tons of iron ore. The organization of the operating force has been developed as the several mill departments have approached completion and at the present time the plant is in readiness to produce pig iron, steel ingots and open hearth steel rails.

Construction work in the development and the building of the city of Gary has been carried on vigorously. Nearly all of the dwelling houses and other buildings planned to be constructed by the company have been completed and are occupied. About 10 miles of the street paving has been completed. There have also been built over 11 miles of cement sidewalk. The entire first subdivision is now being supplied with electric light, water and gas, and is equipped with a complete sewer system. The power required for furnishing these facilities is supplied from the manufacturing plant. Within the first subdivision there have been built or are in process of building 74 business blocks of substantial construction, costing in the aggregate $1,147,000. All of the buildings completed are occupied. One hundred and forty-three dwelling houses and flats have been completed in the first subdivision by outside parties at an estimated cost of $486,000. At this date there are approximately 60 additional dwelling houses and flats in process of building by outside parties. At January 1, 1909, there had been sold by the company a total of 449 building lots, and this number was increased during the month of January, 1909, by the sale of an additional 184 lots. The sales of lots now being made are largely to employees who are purchasing for the purpose of building homes. About 130 acres of land lying immediately east of the first subdivision has been sold to the American Locomotive Company, for use as a manufacturing site. It is the intention of that company to erect on this site a plant for the manufacture of locomotives, which will have a capacity of 50 finished locomotives per month and will employ 3500 men.

The terminal railroad work adjacent to the plant and the city of Gary was substantially completed during the year. The main line of the Lake Shore & Michigan Southern was reconstructed with double track and relocated for a distance of 11.75 miles, its traffic being diverted from its old to the new line August 27, 1908. The Baltimore & Ohio was reconstructed with double track and relocated for a distance of 10 miles, the new line having been placed in operation July 19, 1908. The construction of the new line of railroad from a connection with the Chicago & Indiana Southern, east of the plant site, southwesterly and westerly, passing to the south of the city of Gary, to the town of Gibson, where connection was again made with the Chicago & Indiana Southern, a distance of 7.6 miles, was completed and placed in operation November 8, 1908. This line of railroad is leased to the Chicago & Indiana Southern. The old line of the last named railroad, and which passed through the plant site, was reconstructed and relocated and is leased to the Chicago, Lake Shore & Eastern (a subsidiary company of the corporation), and will be used by it in serving the manufacturing plant. In the large railroad yard just west of the steel plant 51.19 miles of yard tracks and sidings have been graded and laid. The yard was opened for service November 15, 1908. At the eastern end of this yard there have been constructed and put into operation a large round house, coal chutes, power plant, machine shops, &c. Within the steel plant there have been laid 79.25 miles of standard gauge sidings and tracks, connecting the several mill departments with one another, and with the main line of the Chicago, Lake Shore & Eastern.

The New Duquesne Furnace Started.—On March 16 the new No. 5 Duquesne Furnace of the Carnegie Steel Company, at Duquesne, Pa., was put in blast, the match being applied by the daughter of Homer D. Williams, superintendent of the plant. This furnace is 23 x 94 ft. and is equipped with four McClure three-pass hot blast stoves, built by G. W. McClure, Son & Co., Bessemer Building, Pittsburgh. Blast will be supplied by two spare steam engines, already installed in the plant, but the Carnegie Steel Company has placed a contract with the Snow Steam Pump Works, Buffalo, N. Y., for the building of four gas engines at the Duquesne plant, work on which was started some time ago. There are now five furnaces in blast at the Duquesne Works, turning out about 3000 tons of basic iron per day, all of which is used in the open hearth plant at Duquesne.

The H. C. Frick Coke Company, a subsidiary of the United States Steel Corporation, is opening up four coal mining plants in Fayette County, but does not own an acre of coal land in Greene County, Pa., the quality of Greene County coal not being as yet demonstrated for coke making purposes. Future developments of the company will largely be confined to the Pocahontas District in Virginia and West Virginia, where it owns many thousands of acres of coal lands. It is probable, too, that the Frick Coke Company will not build any more beehive coke ovens, but will in its future developments build by-product ovens of the Koppers type, the Illinois Steel Company's Koppers plant at Joliet having given very satisfactory results both in the quality of the coke and the cost of making it.

F. P. Jones, general manager of the Dominion Iron & Steel Company, Sydney, Cape Breton, Canada, advises us that the report is absolutely untrue and without foundation that he stated that his company can furnish steel to the world's market at $6 per ton less than Pittsburgh. This statement was first printed in the *Canadian Gazette* and reproduced in *The Iron Age* of March 11, page 820. The *Gazette* has published his denial of having made any such statement.

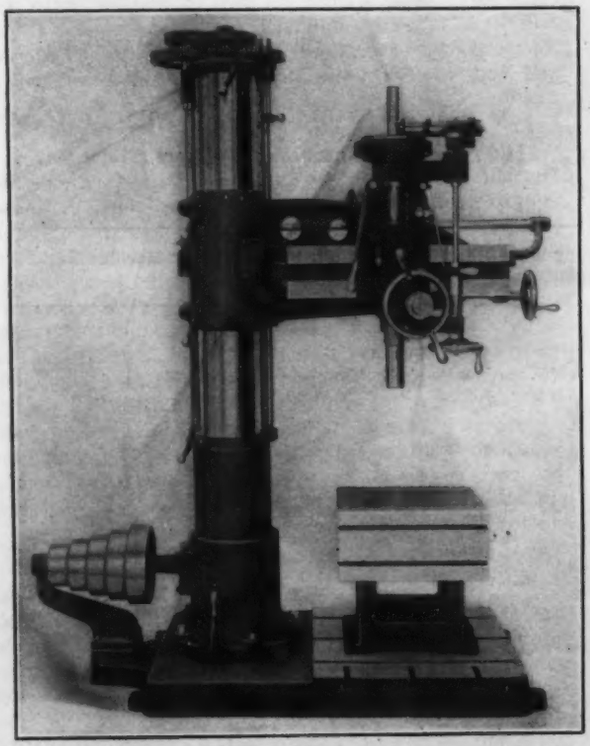
During 1908 215 miles of new rails were laid on interurban electric railroads in Wisconsin, and the present year will probably see these figures very largely increased.

New Mueller Radial Drills.

To the regular line of radial drills made by the Mueller Machine Tool Company, Cincinnati, Ohio, have been added three sizes of a drill of cone driven pattern, built to sell at a moderate price. These drills, an example of which is illustrated, are built in 2½, 3 and 3½ ft. sizes. In their construction special attention has been given to the operator's convenience and the employment of labor saving devices. These machines embody many of the features of the company's standard radial drills, but have been stripped of most of the least necessary refinements to reduce the cost of manufacture so that they may be within the reach of those who do not require the higher priced radial drills.

The stationary column is of heavy section throughout and is bolted to the base, making it capable of resisting enormous strain and affording exceptional rigidity. The arm is of pipe section, giving high resistance to torsion and bending strains induced by the upward pressure of the spindle when heavy drilling is being done. The arm is clamped to the column by two binder handles as shown in the engraving. It is raised and lowered rapidly and is controlled instantly by a lever on the cap which is within easy reach.

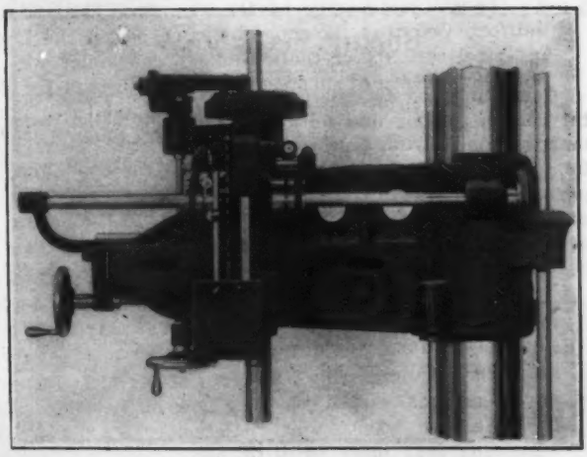
A bronze plate attached to the arm gives the correct



Example of the New Radial Drills Built by the Mueller Machine Tool Company, Cincinnati, Ohio.

speed for different kinds of drilling, enabling the operator to select the proper speeds and make the required changes, which may be done while the machine is in motion. Ten changes of spindle speed are available. The spindle is of forged steel and is ground to size. It has quick advance and return and is counterbalanced. The head is traversed by a double pitch screw and is equipped with a locking device. A tapping attachment is provided which is so arranged that an adjustable gauge screw causes the tap to slip when it reaches the bottom of the hole, preventing it from being broken. Starting, stopping and reversing levers are located on the head directly in front of the operator.

Four changes of automatic feed are obtained through mechanism which can be used as a positive or a friction feed. These changes also can be made while the drill is in motion. The machine is especially adapted for the use of high speed drills. All gears, both spur and miter, are planed, and all shafts as well as the column are ground to size. Any style table can be furnished. The machine was designed to meet the requirements of manufacturers whose object is to get the maximum output



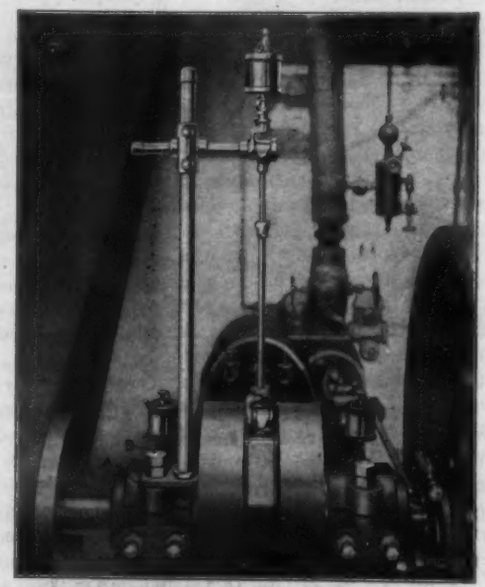
Detail of the Arm from the Rear Side.

in quantity and quality in the minimum length of time and at minimum cost. An expert workman is not required to operate it.

Nugent Oiling Devices.

A device for oiling the crank pin of a high speed center crank engine, manufactured by Wm. W. Nugent & Co., 18 West Randolph street, Chicago, Ill., is shown herewith. This oiler provides a continuous conduit or tube from a stationary oil supply or oil cup to the crank pin when the engine is in motion. The tubes telescope and are long enough to permit of a lap when the engine is on the bottom center. The tubes and joints are made of hardened steel, and when the device is put on the engine properly, that is so that the tubes and joints will not bind when the engine is running, it will last for many years. The longest time one of these has been in operation is on an engine running 300 rev. per min., 10 hours a day for three years, and on examination the joints showed no wear and there was very little wear on the tubes. The whole device is self-lubricating and a new set of tubes costs so little that the maintenance is very small.

Among the 200 and odd other lubricating devices for the reciprocating parts of engines and other machinery, two interesting ones are for horizontal and vertical gas



A Device for Oiling the Crank Pin of a High Speed Center Crank Engine, Made by Wm. W. Nugent & Co., Chicago, Ill.

engines, respectively, to provide a positive means for oiling the pins, and as in the case of the type illustrated, it is accomplished by telescopic tubes which form continuous conduits from the stationary supply of oil to the pins. Small check valves and stuffing boxes are provided in each set of telescopic tubes, and the action when the engine is running is such as to cause the tubes to pump the oil to the pins, insuring positive lubrication.

The New Newton No. 1 Horizontal Boring Machine.

Constant speed drive is the feature of a new horizontal boring, drilling and milling machine of heavy type built by the Newton Machine Tool Works, Philadelphia, Pa. The machine is particularly adapted for machining parts used in the manufacture of electrical equipment and certain classes of railroad shop work. In the boring of box bearings, for example, the long knee and two yokes furnished with the machine enable four boxes to be set up at a time. The frame and all the working parts of the machine are very heavy to insure rigidity.

With the single pulley constant speed drive nine changes of spindle speed are obtained through intermediate gearing. The spindle is 5 in. in diameter, fitted with a No. 6 Morse taper and drives the boring tool by a broad faced key. The spindle is splined in the sleeve, which revolves in brass bushed bearings having a combined length over all of 33½ in. This spindle sleeve is driven by a steep lead bronze worm wheel mounted on the sleeve at the center of the sleeve bearing, and in turn driven by a hardened steel worm which is incased and runs in oil. Eight changes of geared feed to the bar are provided and a hand adjustment. The range of continuous power feed is 42 in., and in special cases the bar is made of lengths to permit of successive feeds with the trolley.

The work table is 25 in. wide, 60 in. long, and has 36 in. of cross hand traverse. The knee is 6 ft. or 9 ft. long, as desired, and has hand and power elevation, giving a maximum distance from the top of the work table to the center of the spindle of 26½ in., and from the top of the knee of 32½ in. The outboard yoke is fitted with revolving bushings, and facing heads can be furnished to be mounted on these bushings. The facing heads are of a special design having quick clamping bolts, and can be unclamped to swing free on the bushings when not in use. This overcomes a troublesome feature in former practice, that of having to remove the facing head for every operation when the head is clamped to the boring bar.

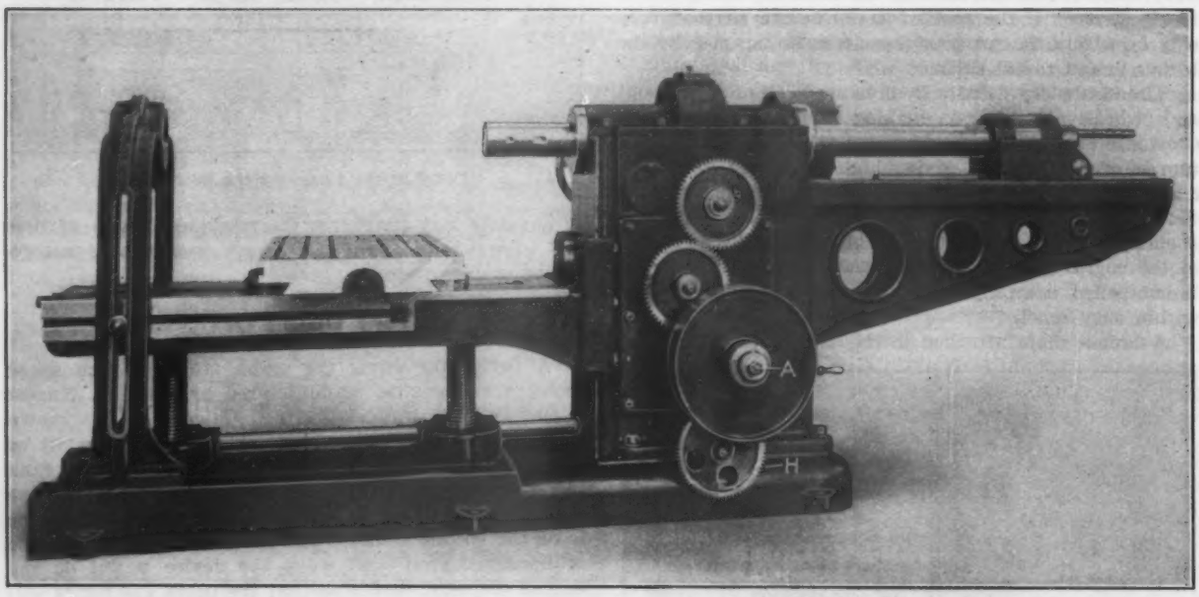


Fig. 1.—The Single-Pulley Driven No. 1 Horizontal Boring, Drilling and Milling Machine Built by the Newton Machine Tool Works, Philadelphia, Pa.

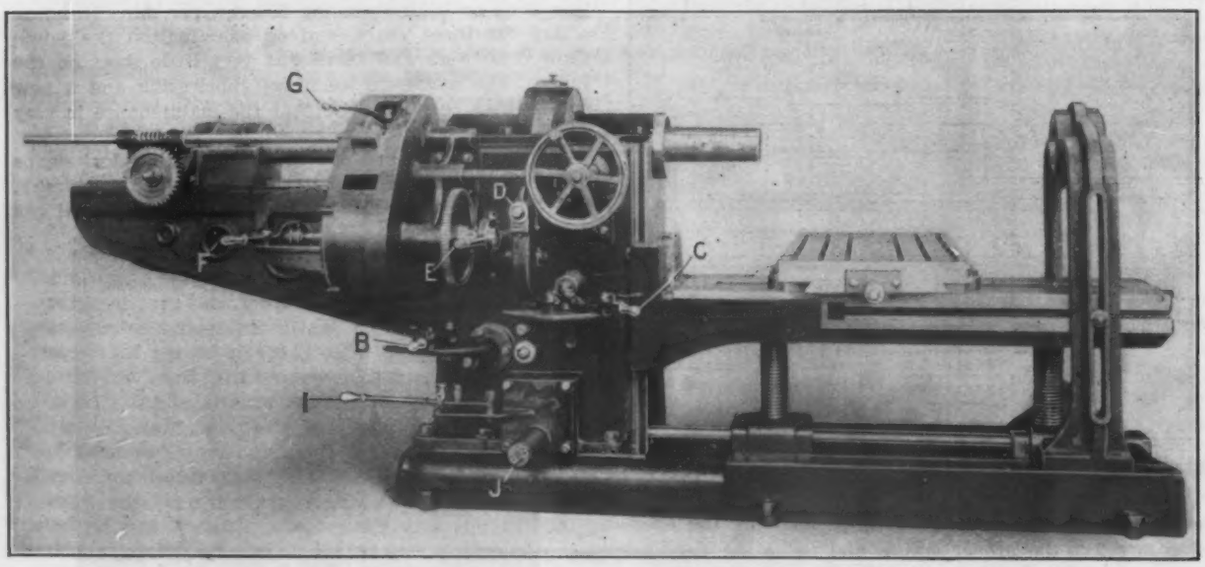


Fig. 2.—View of the Opposite Side, Showing the Controlling Levers.

The driving pulley is keyed to the shaft A, Fig. 1, which extends into the speed box inside of the column. The construction and manipulation of the speed box are described later. For the present suffice it to say that three changes are obtained from the lever B, Fig. 2, and for each of these there are three variations through the lever C. Through the different combinations of gearing speeds of 7.34, 11.57, 14.83, 20.45, 23.37, 27.27, 32.23, 55.1 and 75.84 rev. per min. are obtained when the driving pulley runs at 450 rev. per min.

Drive is imparted to the feed mechanism from the end of the main driving worm shaft through a second worm shown at D, Fig. 2, which meshes a worm wheel that can be clutched to the subsequent transmission train by manipulating the lever E. The mechanism for

the feed box will also be described in more detail later, but while referring to the half tone, Fig. 2, it may be stated that the changes of feed are obtained by manipulating the levers F and G, giving feeds of 0.00526, 0.00836, 0.01329, 0.02107, 0.02881, 0.04569, 0.07264, 0.11523 in. per revolution of the bar. The feed drive finally takes effect through a worm mounted on a shaft extending from the feed box and driving a worm wheel on the same shaft with a pinion meshing a rack on the bed and mounted in the carriage or trolley. When the feed is to be stopped the lever E can be thrown to disconnect the clutch and stop the feed box.

Power elevation of the knee is obtained from the driving shaft through the gear H, Fig. 1, by operating the latch lever I, Fig. 2, and hand elevation is obtained by applying a crank to the squared shaft J. The table elevating screws are right and left thread, and are operated through worm wheels by right and left hand worms which equalize the thrust on the worm shaft and prevent the elevating nuts from shaking loose and throwing the table out of alignment when taking heavy cuts.

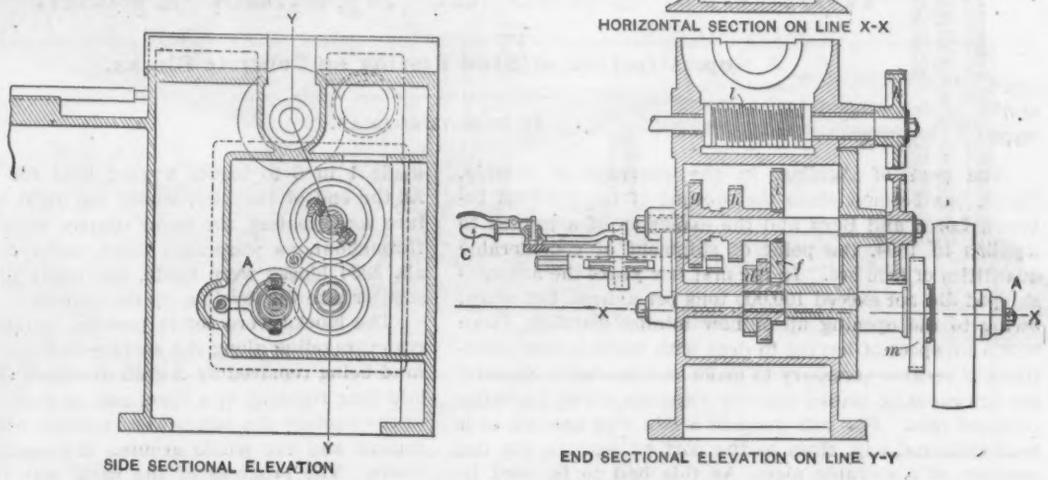


Fig. 3.—Details of the Speed Changing Mechanism of the Newton Boring Machine.

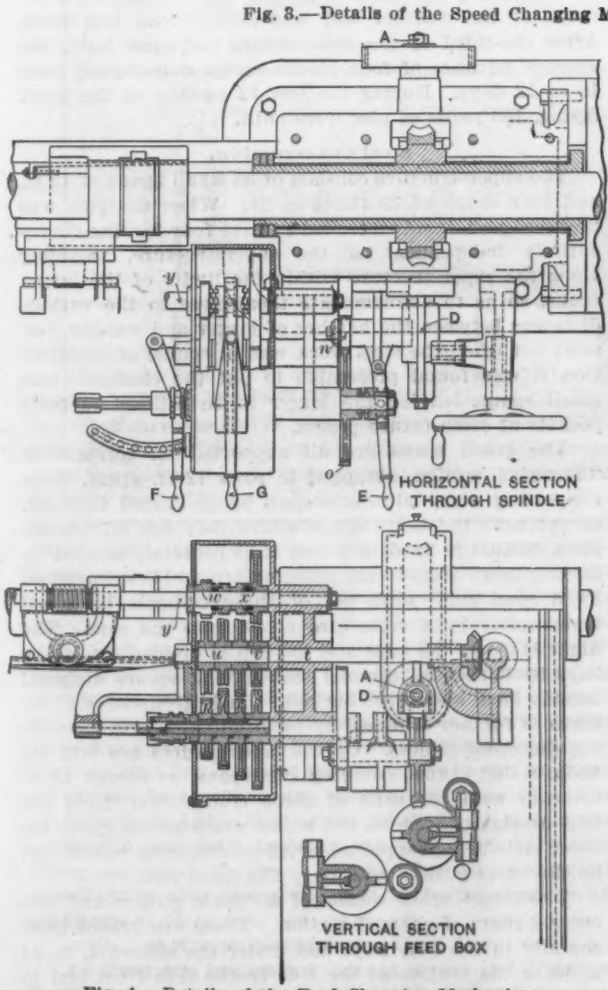


Fig. 4.—Details of the Feed Changing Mechanism.

Details of the Speed and Feed Boxes.

The line drawings, Figs. 3 and 4, reveal the relations of parts in the speed and feed boxes, and in connection with the following description the operation may be understood. In these drawings the capital reference letters indicate the same parts as those with corresponding reference letters in the half-tones, Figs. 1 and 2.

Referring to Fig. 3, the drive may be traced beginning with the single belt pulley on the shaft A. Splined to this shaft is a sleeve carrying the gears *a* and *b*, which are integral with it, and the gear *c*, which is attached to it. These three gears are slidable as a unit on the shaft A through the mechanism controlled by the lever B. This lever is on a rock shaft carrying a segment gear meshing a rack rod to the end of which inside the column is secured a shifting fork. Through this means the three gears *a*, *b* and *c* may be engaged with the gears *d*, *e* and *f*, respectively, on an intermediate shaft. These gears are contiguous and are fixed longitudinally on their shaft. Power through them may be transmitted to the second intermediate shaft by an arrangement similar to that on the driving shaft A, controlled by the latch lever C. In this way the gears *d*, *e* and *f* may be engaged, respectively, with the gears *g*, *h* and *i*, which slide as a unit on the second intermediate shaft. At its outer end the latter shaft drives through the gear *j* a spur gear *k* on the same shaft with the worm *l*, which meshes a worm wheel splined to the main spindle. It will be seen that each of the levers, B and C, has three positions, and the three positions of the one multiplied by the three of the other gives nine speeds in all, as before enumerated. Fig. 3 does not show the transmission for elevating the table, but does show the gear *m* on the shaft A, which is the source of the table elevating drive.

Fig. 4 shows the feed mechanism. As stated earlier the source of this drive is in the worm D on the spindle worm shaft. This worm drives a worm wheel on a short shaft with a spur gear, *n*, and the latter is constantly in mesh with the spur gear *o*. This gear may be clutched to the initial shaft in the speed box through the lever E, and thereby makes active the shaft carrying the cone of gears *p*, *q*, *r* and *s*, each of which is loosely mounted on the shaft except when engaged with it by

means of a diving key operated by the lever F. This lever has seven latching points, at four of which one or another of the gears are engaged by the key while in the other three positions the key is out of the gears. This is one way of stopping the power feed when it is desired to feed by hand in the manner later explained.

The four gears *p*, *q*, *r*, *s* are in constant mesh with four mating gears on an intermediate shaft, *t*, which is also the shaft through which hand traverse is obtained from the hand wheel shown in Fig. 2 through a pair of bevel gears. The gears *u* and *v* on this shaft *t* are in constant mesh with the gears *w* and *x*, which are loosely mounted on the shaft *y*, but can be alternately engaged with it by manipulating the clutch controlled by the lever G. This last shaft *y* drives the worm which through the worm wheel, pinion and rack, as before explained, travels the spindle bar carriage or trolley on the bed. For each of the four speeds of the initial shaft in the feed box there are, therefore, two speeds of the final shaft *y*. With the cone of gears disengaged so that the shaft *t* can revolve freely, hand feeds may be made slowly through the hand wheel by throwing the lever G to the right so as to engage the gears *v* and *x*. Quick return of the boring bar spindle is effected by throwing the lever G to the left so as to engage the gears *u* and *w*. For either of these movements the lever F must be in one of its off positions.

This Newton No. 1 horizontal boring, drilling and milling machine weighs complete 20,000 lb., and the bed occupies a floor space of 4 x 12 ft. Two machines of this type were recently furnished to the H. K. Porter Company, East Pittsburgh, Pa.

Iron Ore Docks at Aguilas, Spain.*

A Superstructure of Steel Resting on Concrete Blocks.

BY GUSTAVE GILLMAN.

The port of Aguilas, in the province of Murcia, Spain, has become, since the opening of the railroad between Lorca and Baza and the extension of a branch to Aguilas in 1894, the point of shipment of considerable quantities of iron ore. In the first few years the amounts shipped did not exceed 100,000 tons per annum, but when, owing to the opening up of new mining districts, there was a prospect of having to deal with much larger quantities, it became necessary to make arrangements whereby the ore could be loaded into the steamers direct from the railroad cars. For this purpose a site was secured in a well sheltered bay, close to the port of Aguilas, for the erection of a suitable pier. As this had to be used in connection with a public railroad carrying ores for different shippers, it was impossible to form storage bins on the pier itself in which to store the ore awaiting shipment, and therefore the selection of the site was in part governed by the necessity of having the bins on land in close proximity to the pier. Hornillo Bay, Fig. 1, in which the pier is built, is surrounded by hills sloping abruptly into the sea, which rendered it possible to excavate the bins in the solid rock at such a level as to allow of reloading for shipment being effected by gravity, direct communication with the pier being afforded by tunnels under the bins. The sea bottom at the site selected consisted of solid rock, partly overlaid by sand. The depth of water close to the shore was about 10 ft., and from there to the center of the bay the bottom formed a regular slope.

The Concrete Substructure.

The pier consists of a substructure of concrete blocks rising 8 ft. 2 in. out of the sea and a superstructure of steel carrying a deck with three lines of rails at 41 ft. above sea level. The total length of the pier is 552 ft. There is practically no tide. The blocks forming the superstructure were made with English Portland cement, and the two sizes principally used were 14 and 16 tons in weight. All the blocks were made of the same hight, 5 ft. 1 in., the width being 6 ft., which is half the length of the small spans of the superstructure, so that a column falls on each alternate block. A few intermediate sizes of blocks had to be made, but practically two-thirds of the structure was composed of the regular sizes. At a distance of 3 ft. 9 in. from the face end the blocks were provided with a semicircular vertical groove on each side, which, when they were laid in position, formed a hole 6 in. in diameter into which bags of fine concrete were rammed, thus bonding them together. In the top row only face blocks were laid, the center being filled up with concrete made *in situ*. The blocks were composed for the greater part of 1 in 9 concrete, the lower portion being made 1 in 6 to insure a good hold for the lewis-bolts. At the end of the pier, where the hight of the substructure was greatest, the lower courses were made of 1 in 6 throughout, as were also those under the columns. In all, 3334 blocks were made, but many of these were of smaller size for leveling up the bottom.

The blocks were set in position by means of a Titan crane traveling along the surface of the substructure, the sand being removed by a grab dredger. The blocks were laid four forward at a time, and as each lot was brought to the surface the joints were pointed with quick setting cement and the whole grouted through the joints from above. The progress of the work was irregular on account of the weather and was slower near the shore. After one-third of the substructure had been built, the average advance of four blocks occupied in laying from 10 to 12 days. During the last 12 months of the block laying, 153 yards of pier were built.

Steel Construction.

The superstructure consists of 35 small spans of 12 ft. and four spans of 33 ft. (Fig. 2). When the pier was first designed, it was intended to have four loading chutes entirely independent of the superstructure, traveling along the superstructure within the limits of the larger spans, so as to accommodate themselves to the various distances between the hatches of larger and smaller vessels; but when the steel work was in course of construction it was found preferable to put the chutes in the small spans, leaving the larger to be utilized to form pockets at some future period.

The small spans are all supported on columns of "Phœnix" section, arranged in rows 12 ft. apart, those supporting every alternate span being braced together, except near the large spans where they are all braced. Each column is fixed in a cast steel pedestal, secured by holding down bolts to the substructure, and is surmounted by a steel cap. Each set of three columns is joined transversely by a cross girder bolted to the caps. The hight between the base and the cap is divided into three bays by horizontal channel bars having square diagonal tension bars with turn buckles. Each group of six columns is further stiffened by longitudinal beams connecting the cross girders. On the cross girders are laid six 12-in. rolled beams, covering two spans, so spaced as to coincide with the rails of three tracks. On these are laid wooden ties across the whole width of the deck, the outer ends being supported by 12-in. channels, which rest on the cross girders and carry the hand rail.

The larger spans consist of six plate girders and two outer girders of channel section. These are braced horizontally in the 6-ft. ways and under the sidewalk, so as to leave the centers of the side tracks free from end to

*From a paper read before the Institution of Civil Engineers, London, Eng.

end. The contiguous ends of these girders are carried on a cross girder of box section supported by three lattice and plate columns of square section. The rails are secured by hook bolts passing through the sleepers to the rolled joists on which they rest, except in the large spans where the rails rest on longitudinal timbers bolted direct to the main girders. The whole upper surface of the pier is decked with creosoted pine planking.

The superstructure has been given ample strength throughout, so as to provide for all contingencies of unequal loading and wind pressure, besides making allowance for the action of the sea air and water.

Construction and Operation of Chutes.

The loading chutes, four in number, are so fixed that they can be accommodated to the hatches of two vessels, one on either side of the pier. They consist of three parts, viz., the chute proper, a rectangular channel 31 ft. long, 3 ft. wide and 2 ft. 8½ in. deep, built of ⅝-in. plate stiffened with angle and tee irons, and lined with renewable wearing plates; the traveling carriage supporting the upper end of the chute on a universal point, and the strut which supports the lower half of the chute. The traveling carriage moves transversely across the pier on rails bolted to the caps of the columns, and is worked from the sidewalk by an arrangement of chains connected by bevel gear with a winch fixed to the hand railing. The strut is pivoted to the under side of the chute by a universal joint, and its lower end rests on a turn table forming part of a slide rest whereby the angle of the chute can be varied. This arrangement (Fig. 3) allows the chute to be placed in its working position, with its upper end under a hopper in the side track, or to be housed horizontally under the decking. When in its working position the chute can be swung fore and aft, the motion being controlled by guy ropes. To facilitate the raising and lowering of the chute, three counterbalance weights are attached by wire ropes to the back end of the carriage. These are so arranged that when the chute is housed they rest on the substructure, and as the chute is moved forward they are brought into play, and, being connected by short lengths of chain, practically equalize the effort required for working the chute in all positions.

A Track for Transferring Cars.

As there was not room to put in points and crossings between the center and outside tracks beyond the seaward chutes without lengthening the pier more than was necessary for accommodating the steamers, traversers had to be employed for disposing of the cars after their contents had been dropped into the chute. For this purpose the flooring beams were omitted over the last two 12-ft. spans, and on the cross girders rails were laid for the traversers to run upon. These rails were laid 3 in. higher opposite the outer tracks than in the center, this extra hight being gained in the last 10 ft. of the outer tracks. By this means, when the empty car is shunted onto the traverser, on lifting a catch the traverser gravitates to a position opposite the center track, and is locked there while the car is being removed. On lifting the locking gear, the traverser returns to its original position by means of counterweights. The traversers are built of 12-in. beams with channel bracings, and run on 16 wheels with roller bearings. As the transverse rails are level opposite the tracks and inclined in the 6-ft. way, had the wheel centers been fixed as in ordinary traversers, on passing over the changes of gradient each wheel in turn would have had to take all the weight. To obviate this the four wheels running on each rail are grouped in pairs, and each pair has its axles fixed in rocking levers pivoted at the centers to the frame of the traverser. This allows of the wheels adapting themselves both to the convex and concave portions of the rails, each taking its share of the weight in all positions (Fig. 5). There are two of these traversers, so that work can be carried on simultaneously on both outside tracks, the empties being traversed alternately as required.

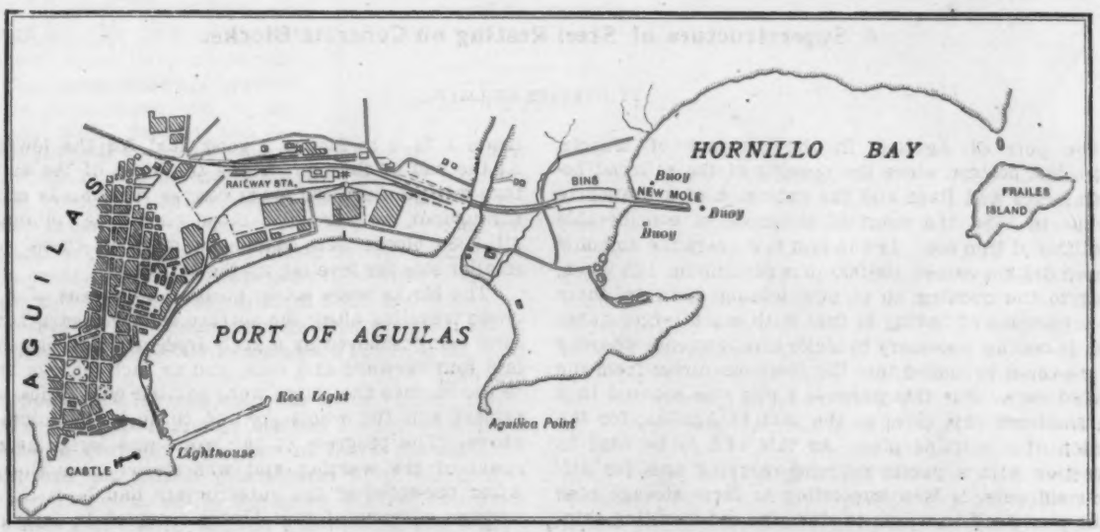


Fig. 1.—Map of Aguilas and Hornillo Bays, Showing Location of Ore Bins in the Approach to the Ore Docks.

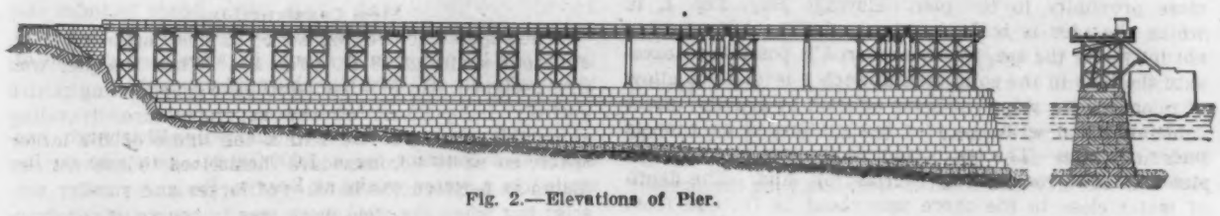


Fig. 2.—Elevations of Pier.

The substructure is protected at the part where steamers are berthed with timber fendering, and the pier is provided with suitable mooring rings. Buoys are also provided for facilitating the berthing of vessels and for shifting them fore and aft.

The Storage Bins.

The ore storage bins previously referred to form an essential portion of the arrangement, as they are required to regulate the traffic both from the railroad and the shipping point of view. The original design consisted of four parallel high level tracks, 57 ft. 6 in. apart, between which were three low level tracks in tunnels, the rock over each tunnel being excavated so that the arch formed the bottom of each bin, and the slopes being trimmed off to a line from the springing of the arch to the center

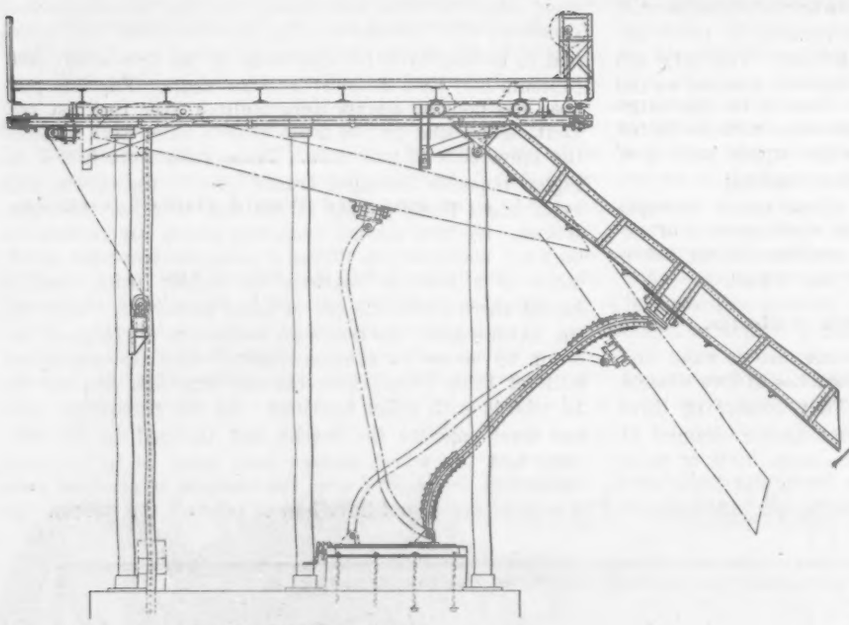


Fig. 3.—Side Elevation.

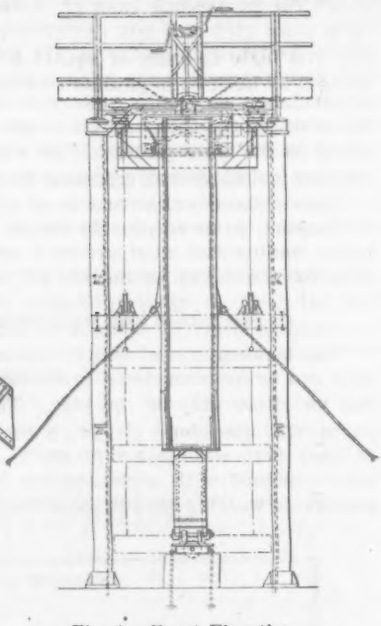


Fig. 4.—Front Elevation.

Chutes for Loading the Iron Ore.

line of the high level track. The high level tracks were carried on masonry walls with gaps alternately on either side through which the ore could be shot into either bin. Chutes were placed in the haunches of the tunnel arch every 15 ft. The length of the bins was 160 yd. Owing to the limited space available for development, even with a gradient of 1 in 33, it was only possible to obtain a difference of level of 30 ft. between the high and low level tracks, as the latter had to be kept at the level of the pier deck. The ore to be deposited is taken by the hopper cars to the high level tracks and is shot into the bins, from which it is reloaded into the cars through the chutes in the arch of the tunnel.

At first only the center bin of 20,000 tons capacity was completed, as it was sufficient for the traffic expected. Subsequently the southern bin was built and the design was modified by putting two tunnels under it and making the sides more vertical. This has the advantage of increasing its capacity to 24,000 tons, and causing the loading and unloading to proceed more quickly owing to the ore having a better fall. The cars used for the traffic to the pier are of the hopper type of 35 tons capacity, built of pressed steel.

Since the first steamer loaded in 1903 the pier has been in regular use. The rate of loading as far as the pier and cars are concerned is fast, but with the present traffic the rate cannot be maintained, as the output is not sufficient to supply the necessary number of trains. The actual loading can be carried on at the rate of 600 tons per hour to each of two steamers. Loading at this rate a steamer requires to shift its berth every 3 hr., which entails a suspension of operations. Under these circumstances, it is difficult to fix the maximum loading capacity of the pier, but with an accumulation of trains, on more than one occasion a steamer of 3000 tons has been loaded in a day.

The total cost of the pier was £47,994 (about $233,000), including all material, plant, duties, &c. The concrete blocks varied in cost with the rate of exchange (which oscillated considerably during the execution of the work), but the mean cost of the cubic meter of block molded was 15 shillings, and placed *in situ* (with all expenses, including dredging) the cubic meter of substructure cost £1 9s. 7d. ($7.18), equivalent to £1 2s. 7d. ($5.50) per cubic yard. This latter figure includes the cost of superintendence of the whole work, so that it is in reality higher than it should be were each portion of the work charged with its share of expenses.

The Harris Pump & Supply Company, Pittsburgh, has received a contract for a 1,000,000-gal. pump to be installed in a water works at Beaver, Pa.

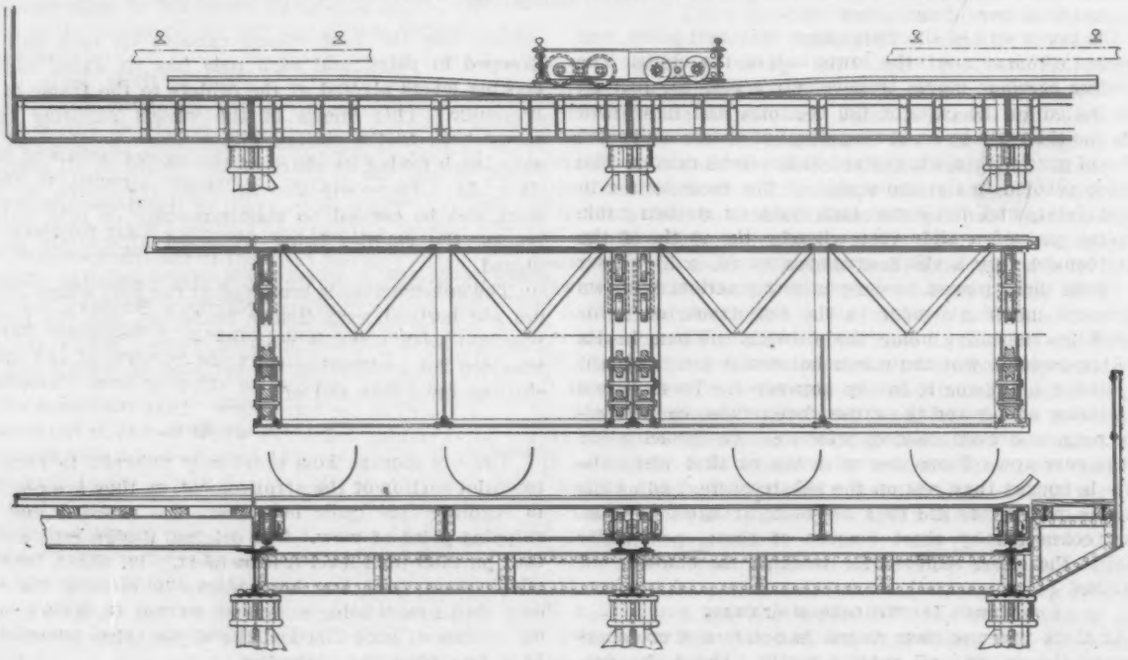
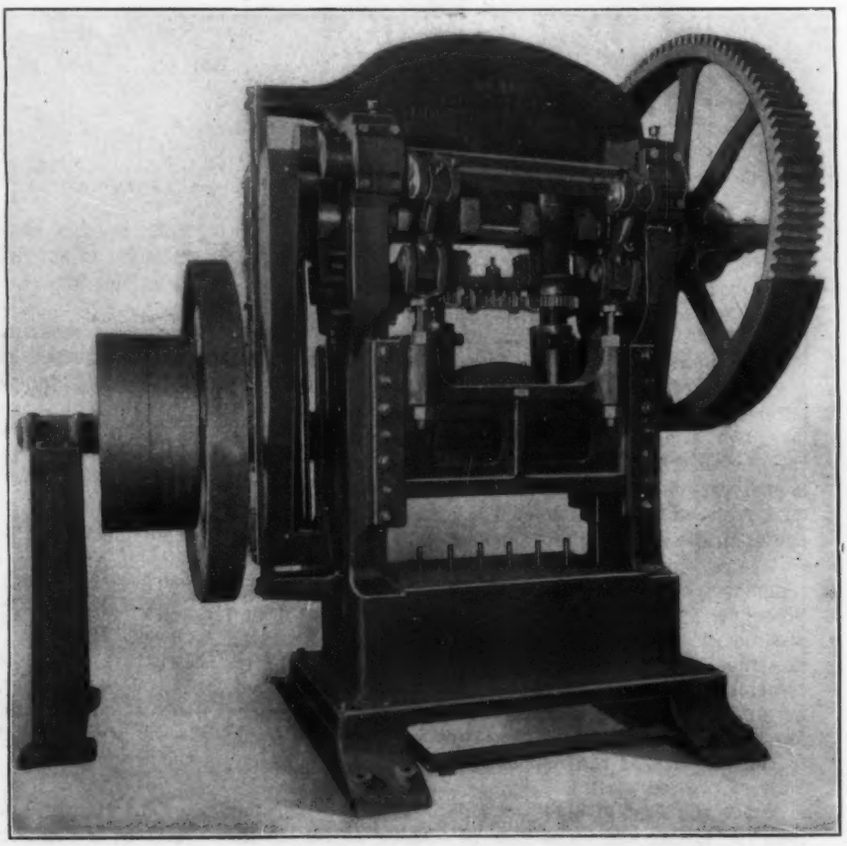


Fig. 5.—Traverser for Empty Cars.

A Bliss Double-Crank Toggle-Drawing Press.

Drawing and stamping large forms of irregular shape, such as trays, stove tops, seamless roasters, &c., where the drawing and stamping is done in one operation, is done in large double crank presses, with heavy spring pressure attachments. Much superior and more uniform results can be accomplished with toggle drawing presses, especially when the article to be drawn is of considerable depth, as the greater the depth of draw the more varied is the pressure produced by the spring attachment on the blank, and the amount of power consumed is very considerable, whereas in toggle drawing presses an even holding pressure is secured and a minimum amount of power used.

To overcome the objectionable features of drawing under rubber and spring pressure, the class of work mentioned, the E. W. Bliss Company, 11 Adams street, Brooklyn, N. Y., has designed a new type of press known as the double-crank toggle-drawing press, which is built in 10 sizes. The original design of this type press was made some three years ago. The press shown, however, has been redesigned to embody such changes and improvements in detail of construction as recent experience has demonstrated to be of advantage. The frame of this press is of large proportions and is cast in one piece, giving a maximum amount of strength and rigidity. The punch slide has a stroke of 8 in. and is actuated by a high carbon hammered steel double-crank shaft of large diameter. The pressure on this slide is distributed over two points, by screw connections, which are geared together and work in unison when adjusting the slide, insuring perfect alignment at all times. This adjustment is accomplished by oscillating a ratchet lever.



One of the New Type Double-Crank Toggle-Drawing Presses Built by the E. W. Bliss Company, Brooklyn, N. Y.

The blank holder slide, which has a stroke of 6 in., encases the punch slide, and the pressure on it is distributed over four points by heavy steel screws. This slide is actuated by the Bliss patented toggle motion. The toggles, made of steel, receive their motion from the crank shaft through an outside slide, which is operated by a crank connection on the end of crank shaft. The blank holder slide mechanism is balanced to avoid undue strain upon it. The construction insures all stress borne by the blank holder slide being taken by the press frame. At the beginning of the stroke the blank holder slide first moves down, while the punch slide first moves upward a trifle and then downward with the blank holder slide, but somewhat behind it. When the blank holder slide dwells the punch slide continues its downward movement and forces the blank into the die, causing it to slip between the lower side of the blank holder and the upper face of the die, under a uniform and even holding pressure. The punch slide then moves upward together with the blank holder slide, and the drawn and stamped shell is pushed out of and to the top of the die by a knockout actuated by the blank holder slide.

The press shown will handle a 42 x 23 in. blank of No. 14 gauge steel, or smaller blanks of heavier stock in proportion. It will take a drawing punch 12 x 36½ in. A patented jaw clutch, entirely of steel, is used on this press, and all gears are cut. The main gear is 73 in. in diameter, with an 8-in. face. The flywheel is 62 in. in diameter, with 6-in. face, and weighs 1800 lb. The press makes 30 strokes per minute, and the driving shaft 205 rev. per min. Total hight of the press is 10 ft. 9 in., and the floor space overall is 10 ft. 9 in. by 7 ft. 3 in. The weight complete is appoximately 42,000 lb.

Free Iron Ore Would Benefit Canada.

TORONTO, March 20, 1909.—Owners in iron mines in Ontario welcome the Ways and Means Committee at Washington in placing iron ore on the free list of the pending tariff bill. If Congress lets this change stand the prospects of the iron mining industry will be materially brightened in Thunder Bay, Rainy River and Algoma districts. It has long been maintained that the United States would be found a capacious market for all of the ores that abound in these fields, if only the duty of 40 cents a ton was out of the way. As it is, the Helen mine's output goes largely to furnaces south of the border, and the ore shipping operations of the Atikokan Iron Company are mainly directed to the United States. The principal part of the Moose Mountain mine's output is destined for American blast furnaces. To provide the shortest rail haul in the transportation of Moose Mountain ore to United States consuming plants, a section of the Canadian Northern Railway line has been built from the main branch to Georgian Bay at Key Harbor. Unquestionably the removal of the duty would give a sharp impulse to shipping from Canadian mines to American ore consumers. That the Canadian iron and steel making industries would benefit at the same time by the change is thought to be extremely probable. A good demand from the United States would turn enterprise toward the development of ore resources that are now lying neglected and would set prospectors going again to discover iron deposits. Very important results might follow. If great ore bodies should be brought to light furnaces would be almost certain to spring up at convenient points, and the iron and steel industries would be very greatly benefited. C. A. C. J.

The Plurality High Power Bolt Cutter.

In an improved form of the plurality-die bolt cutter built by the Mummert, Wolf & Dixon Company, Hanover, Pa., a single pulley constant speed drive is the most radical departure. In its general features the machine is similar to the belt driven pattern with three-step cone described in *The Iron Age* July 18, 1907. Fig. 1. herewith, shows the appearance of the machine from the working side, Fig. 2 a longitudinal section in which the construction and principles of operation are made plain and Fig. 3 details of the plurality dies used in the head. Otherwise the head is constructed and manipulated as before, and the illustration of it given in the earlier article would answer equally well to illustrate the head of the new machine. In the frame construction a noticable change from the former pattern is that the bed is continuous to the floor throughout its length. Formerly the vise carriage was supported on an overhanging knee. This change is one of the results of seeking to secure the greater rigidity necessary when using high speed steel dies.

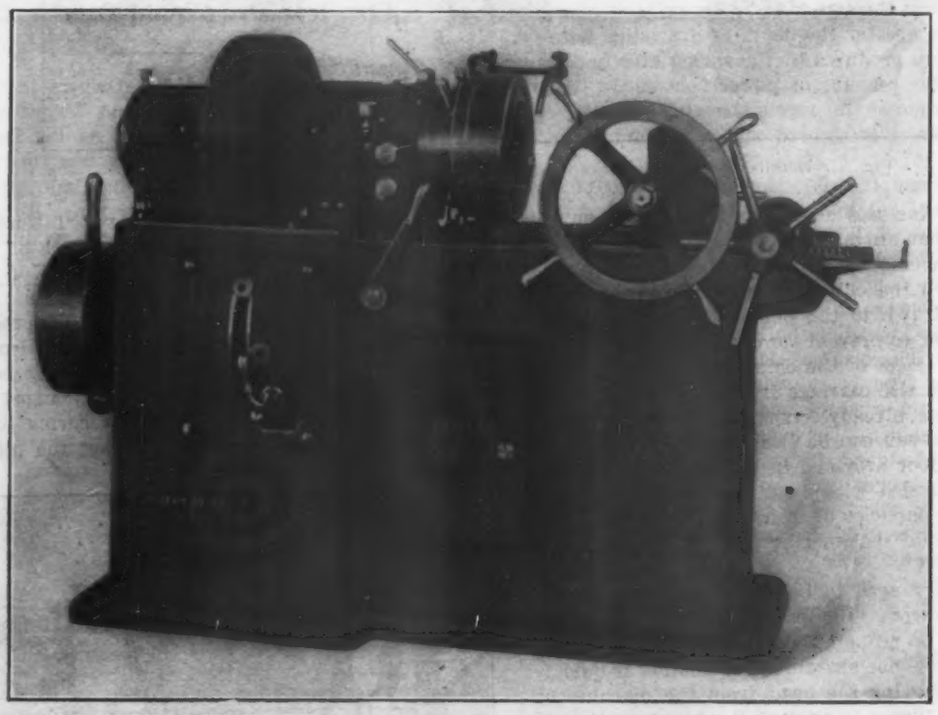


Fig. 1.—The Plurality-Die High Power Bolt Cutter Built by the Mummert, Wolf & Dixon Company, Hanover, Pa.

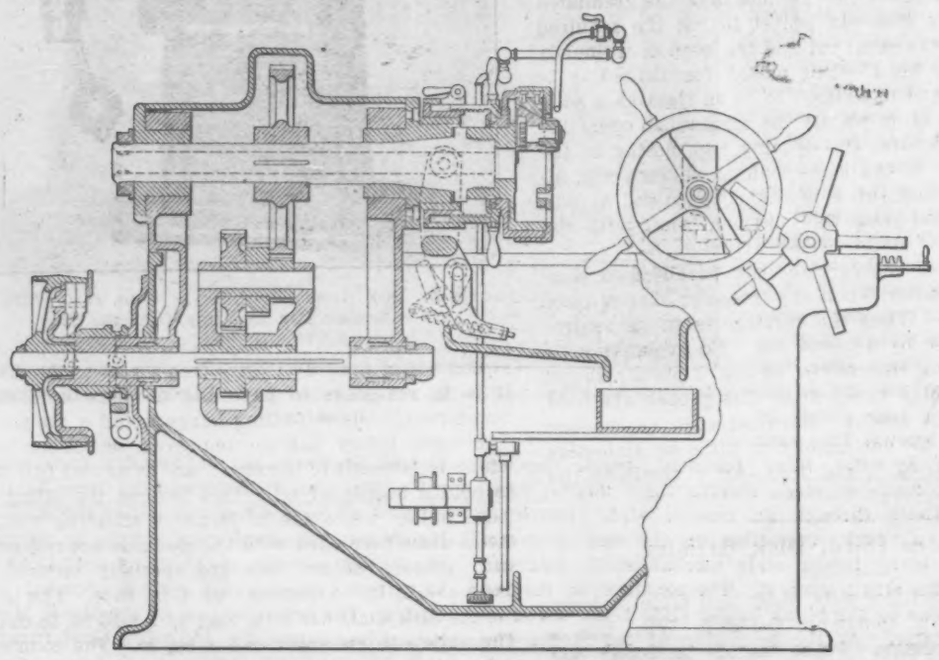


Fig. 2.—Sectional View of the Plurality High Power Bolt Cutter.

Within the driving pulley as shown in Fig. 2 is a friction clutch whereby the machine may be started and stopped with the driving pulley running continuously. It is therefore unnecessary to have a countershaft with this machine. The control of the friction clutch is through the vertical lever shown at the left end of the machine in Fig. 1. This through a rock shaft and yoke operates the clutch expanding cone. Three variations of speed of the spindle are obtained through a tumbler gear set manipulated by the handles shown on the side of the machine near the head end in Fig. 1. The slots in the plate covering the opening in the frame opposite the gears are so formed as to compel withdrawing the gears from mesh before moving them sidewise to engage in a new position. At the top of each slot is a hole in which the tumbler lever is latched with the gears in any one of their three operating positions. The arrangement of the tumbler gears is clearly shown in the sectional view, Fig. 2, where it will be seen that the cone of gears is carried in a rocking casing loosely mounted on a sleeve splined to the driving shaft.

All gears in the machine are inclosed within the frame, as is also the oil pump. The base has a solid

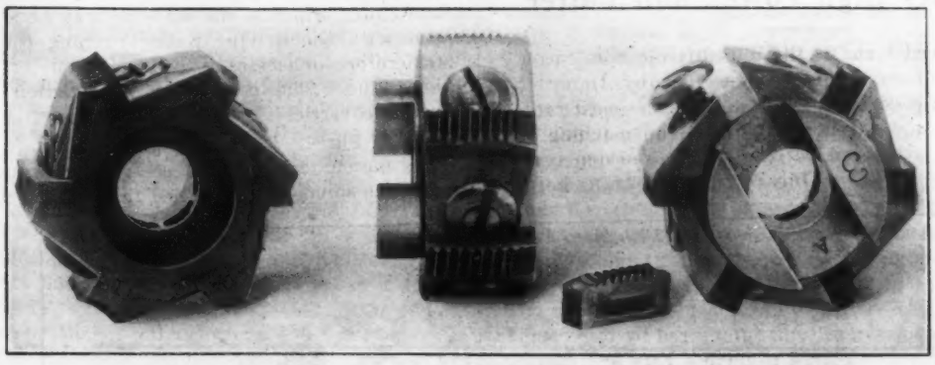


Fig. 3.—Details of the New Plurality Dies with Inserted High Speed Steel Cutters.

bottom which is inclined as will be seen from the sectional view so that all oil drains to the suction pipe of the pump. A partition at the bottom leaves a settling chamber in which the chips can separate out from the oil before it is drawn to the pump. The pump suction also has a strainer to prevent foreign matter from entering with the oil. Most of the chips are caught by a pan directly under the vise carriage from which the oil overflows to the bottom, already comparatively free from foreign matter. The pan can be easily removed for emptying through the door provided in the side of the frame. As the head is flooded with oil during operation, if the oil contained fine particles of iron they would eventually work their way into the wearing parts of the head and rapidly wear it out.

The head is arranged to be opened either automatically or by hand through the lever just beneath it in Fig. 1. The dies can be adjusted while the machine is running. Changes from one size thread to another is quickly made without removing the head from the machine by revolving the die pieces to present the required dies toward the center of the head. By means of the graduated adjusting ring the dies can be set to cut the required diameter without the usual cut and try method ordinarily resorted to. The head when closed for threading is positively locked and is claimed to be as rigid as a solid die. Fig. 2 shows quite plainly the mechanism operating the ring which produces the opening and closing of the die. This is done in the same manner as formerly, although the lever mechanism is slightly modified as will be observed by comparing this sectional view with the one which appeared in the earlier article.

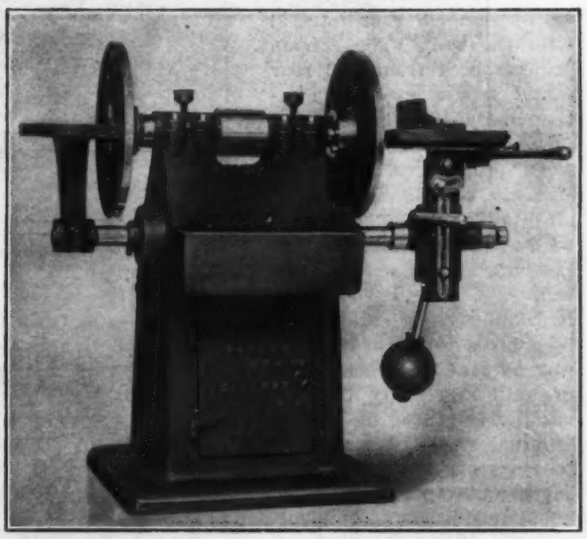
The vise jaws of the carriage can be adjusted sideways, that is, off center, when any irregular shaped piece is to be threaded. When the carriage is in its central position it is locked by a dowel pin. No explanation is necessary of the dies themselves, as Fig. 3 plainly shows how the inserted high speed steel dies proper are held in the revolving die holder. Each set such as the one shown provides for the cutting of four different diameters of thread, ¼, ⅜, ½, ⅝, ¾ and 1 in., for example, in the set shown.

The Ransom 18-In. Disk Grinder.

The 18-in. disk grinder with lever feed table as built by the Ransom Mfg. Company, Oshkosh, Wis., has a number of improvements. These include hardened end thrust collars on the arbor, a countershaft arranged with a new improved oiling device holding a supply which will last for several weeks and oil the pulley while the machine is standing still and the steel disks with which the machine is equipped. The spindle is of high carbon steel turned and ground and runs in bearings lined with babbitt. The steel disks are turned true to within an error limit of 0.001 in., and are bolted to collars on the arbor with bolts and nuts instead of with bevel head screws. The end thrust collars have 9 sq. in. of surface.

The shaft upon which the tables are supported is arranged so that it can be aligned parallel to the disk arbor. The table on the left end is 6 x 18 in., and is square with the face of the disk. The table on the right end is arranged to oscillate on the arm, and can be raised or lowered. It is 7 x 12 in., has lever feed with an adjustable stop, and is provided with two T slots, so that it can be tilted to any angle with the face of the disk. This company claims to be the originator of the disk grinder, having a cross feed table with T slots. All wearing surfaces exposed to emery are made dustproof.

The regular equipment includes an angle iron on the right hand table, but special fixtures can also be had on order. The base of the machine is arranged to hold wrenches and tools. The clamp for securing the emery circles to the disks is arranged so that the top can be



An 18-In. Disk Grinder with Lever Feed Table Built by the Ransom Mfg. Company, Oshkosh, Wis.

swung out of the way to give free access to the disk until it is in readiness to have the pressure applied. The countershaft has self-oiling hangers and a ground shaft. The loose pulley has an improved self-oiling bushing, which is fastened to the shaft, and is drilled full of holes to hold a supply of oil. This insures the oiling of the loose pulley while the machine is standing still. The metal disks furnished with the machine are not provided with grooves unless they are specially ordered. The disks are 18 in. in diameter by ¾-in. face. The bearings for the disk shaft are 6 in. long by 2 1-16 in. in diameter. The pulley on the arbor is 5 x 5¼ in. The countershaft tight and loose pulleys are 10 x 6¼ in., and are intended to run at 500 rev. per min.

Included with the equipment of the machine are the necessary wrenches, a screw driver, 16 Ransom grinding circles, 1 gal. of cement, one can of grease, countershaft, disk cementing clamp and four steel disks. The machine occupies an overall space of 50 x 27 in. The size of the base where it bears on the floor is 27 x 28 in. The weight of the machine complete with the disks, clamp and countershaft is about 1600 lb.

The firm of William Farris & Brothers, 203-204 Diamond Bank Building, Pittsburgh, formerly a partnership concern, has been succeeded by the Farris Bridge Company, a West Virginia corporation, which contracts for the erection of bridges, mill buildings, &c.

New American Shapers.

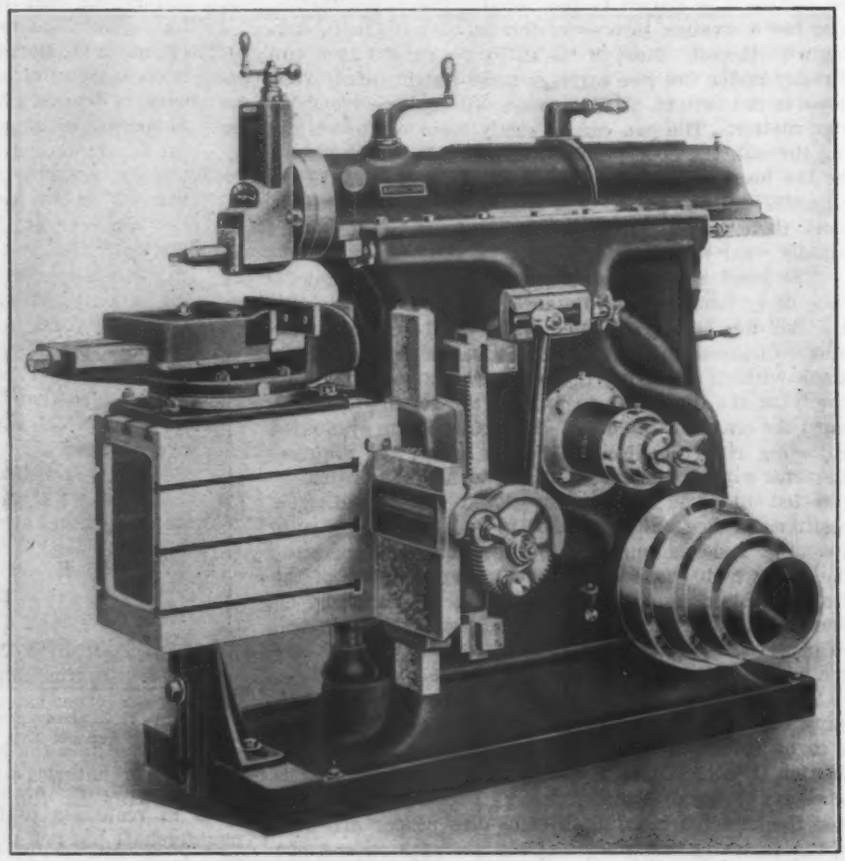
A completely redesigned line of back geared shapers equally adapted to tool room and manufacturing use is now offered by the American Tool Works Company, Cincinnati, Ohio. This line includes a 15-in. single geared shaper and 16, 18, 21, 25 and 30 in. back geared shapers. The illustration herewith shows the 21-in. size, and the tables of tests give data from 16 and 21 in. back geared crank shapers in operation. It will be seen from these tests that these machines are considerably more powerful than those previously manufactured by this company, and they are also declared to have a very high degree of accuracy—0.001 in. as the maximum error for the full length of the table. In many cases this accuracy is even more marked. In reference to the tests it should be explained that they cover simply normal duty. The more extreme results have been omitted for the reason that the company desires to leave a liberal margin in the factor of safety.

The column is unusually deep and wide, and is strongly braced internally with further reinforcement on the outside on the line of strain by a wide rib cast integral with the wall. The column projects both front and rear at the top to provide an exceptionally long bearing for the ram. The base also is of large proportions, deep and strongly ribbed, and has an oil retaining flange all around with a front extension to support the table at its outer end.

Similarly attention has been given to stiffness in the ram by making it heavy and of uniform rigidity throughout the length of the stroke. Internal ribs and long wide bearings on the column with continuous taper gibs adjusted by end screws contribute to its rigidity. The stroke is positive, with eight changes of speed ranging from 7.7 to 96 strokes per minute. The length of the stroke is alterable without stopping the machine, as is also the position of the stroke. The rocker arm is extra heavy, and gives a practically uniform rate of speed, and the cutting stroke has an exceedingly quick return. Through a convenient self-locking lever the machine is quickly changed from single to back geared drive; the back gear ratio is 24.3 to 1, which with the large cone pulley gives the power necessary for taking heavy cuts. The head may be operated at any angle within an arc of 100 degrees, and has a convenient and efficient locking device. A continuous taper gib with end adjustment is provided for the down slide. An unusually long down feed is obtained through a feed screw having an adjustable collar reading to 0.001 in. In the large tool post holders for inserted cutters can be used. The tool post screw and serrated back plate are of tool steel.

The box form table has three T slots on the top and side cut from the solid and is braced internally. It is readily detachable. The apron also has three T slots on the face for clamping work when the table is removed. The apron is fitted with a cross rail with a continuous taper gib to adjust for wear. A patented automatic stop releases the feed if an excessive cut is attempted, or the apron accidentally fed to its limit in either direction on the rail. The box form cross rail is also very heavy and strongly ribbed, and is exceptionally long, giving the table a long horizontal range of travel. Extra wide bearings are provided for the apron, and a special clamping and bolting arrangement holds the cross rail to the column in such a way that it cannot drop away when the binder bolts are loosened. Through a ball bearing telescopic elevating screw the cross rail can be raised and lowered.

One of the important new features is the cross feed mechanism. The cross feed is variable and automatic, with a range from 0.008 to 0.2 in., and changes are possible while the machine is running. These changes are made at the slot head near the top of the column through the conveniently operated star knob that is plainly shown in the illustration. An index shows the feed corresponding to any setting, and reads from 1 to 25 notches, each notch representing 0.008 in. feed. Any adjustment of the mechanism due to change of position of the rail is unnecessary by virtue of this construction, the feed being uniform as set regardless of the position of the rail. Through the knob on the large feed gear the feed is thrown in or out, or reversed. Covers protect the feed gears. The feed rack is of bar steel.



A 21-In. Back-Geared Crank Shaper of the New Type Built by the American Tool Works Company, Cincinnati, Ohio.

The double section at the top of the rocker arm and the large opening through the column permits the keyseating of a shaft 3½ in. in diameter. Larger shafts may be keyseated by setting the table to allow the shaft to pass outside of the column, using the head set at an angle. Another part of modified design is the vise, which is made very heavy with deep jaws faced with steel. It is secured by four bolts to a swivel base, which is graduated in degrees and covers nearly the entire area of the table top to which it in turn is clamped by four bolts. The vise screw has bearings at both ends, and is always in tension when holding the work.

In the way of lubrication the provisions are very complete. The ram slides have felt wipers at both the front and center of the column, and are oiled from the center where oil pockets are provided. These felt wipers take the supply of oil and distribute it through oil grooves to the extreme ends of the slides. An oil pocket is cast integral, with the column at the rear to receive any

waste of oil, which may be drawn off at any time through piping extending from the rear of the column. In a pocket in the arm a large quantity of oil is stored from which it is distributed thoroughly through the crank pin and sliding block in the rocker arm.

All of the gears are cut from the solid with special cutters and have coarse pitch and wide face. The bevel gears are planed from the solid, and the pinions in the driving train are cut from solid steel. All working parts of the machine are easy of access through the large door on the rear side. All of the bearings are wide and are scraped. Running bearings are bushed to allow replenishing in case of wear. The bearing for the driving pulley is massive, and is cast integral with the column. It is long and extends well into the center of the cone to eliminate the necessity of an outboard bearing. This bearing is bronze bushed. All shafts are of high carbon crucible steel, ground, and parts which in operation would be a menace to the operator are covered or protected.

The regular equipment of the shaper includes a vise, countershaft, tight and loose pulleys 16 in. in diameter by 4¼-in. face, intended to run at 190 rev. per min., all necessary wrenches and the automatic safety stops described before. On special order the shaper can be equipped with a table support, automatic stop dog for the cross rail whereby the feed may be stopped at any point, power down feed, circular attachment, mold makers' vise and table, tilting top for the box table, universal table with tilting side, four-speed gear box and electric motor drive. The 21-in. shaper, the size illustrated, has an actual length of stroke of 21½ in., a down feed to the head of 9 in., a vertical travel of the table of 14½ in. and a horizontal travel of the table of 26½ in.

Test of 16-In. Back Geared Shaper.

Depth of cut. Inches.	Feed per stroke. Inches.	Cutting speed. Ft. per min.	Belt on cone step.	Back gear position.	Revolutions of cone.	Length of cut.—In.	Amperes at tool.	Horsepower at tool.	Voltage.
¼	0.160	17.3	2	In	210	12⅛	21	6.3	224
⅜	0.088	17.3	2	In	210	12⅛	24	7.2	224
½	0.080	17.3	2	In	210	12⅛	23	6.9	224
Above tests made in cast iron, close grained, 16-in. stroke.									
⅛	0.080	17.3	2	In	210	12	11	3.3	224
¼	0.024	9.9	4	In	418	12	15	4.5	224
¼	0.040	14	3	In	294	12	15	4.5	224
Above tests made in machinery steel, very tough, 16-in. stroke.									

Test Sheet, 21-In. Back Geared Shaper.

Depth of cut. Inches.	Feed per stroke. Inches.	Cutting speed. Ft. per min.	Belt on cone step.	Back gear position.	Revolutions of cone.	Length of cut.—In.	Amperes at tool.	Horsepower at tool.	Voltage.
½	0.080	11.4	2	In	157	13½	9	2.65	220
⅝	0.160	16.3	3	In	225	13½	24	7.07	220
⅝	0.200	11.4	2	In	157	13½	21	6.19	220
Above test made in cast iron, close grained, 18-in. stroke.									
½	0.080	11.4	2	In	157	14	21	6.19	220
½	0.096	11.4	2	In	157	14	24	7.07	220

A party of 105 students in the engineering department of the University of Ohio, in charge of Prof. F. C. Caldwell, will visit Milwaukee March 30 for an inspection of the plants of the Nordberg Mfg. Company, F. M. Prescott Steam Pump Company, Cutler-Hammer Mfg. Company, Allis-Chalmers Company, Milwaukee Gas Light & Coke Company, Milwaukee Electric Railway & Light Company, West Milwaukee car shops and the city pumping stations.

Reports are untrue that the United States Steel Corporation has bought all the coal land holdings of J. V. Thompson and associates in Greene and Fayette counties, Pa., said to amount to 250,000 acres. We are advised that no negotiations whatever have taken place between the corporation and Mr. Thompson relative to such a purchase.

Preliminary arrangements for the national convention of the American Water Works Association, to be held in Milwaukee, Wis., June 7 to 11, were recently discussed in the office of the city engineer, Chas. J. Poetsch. The Entertainment Committee is composed of Mr. Poetsch, W. J. Sando, G. H. Benzenberg, V. J. Schoenecker, Jr., and Thomas McMillan.

The Crucible Steel Company's Business Improves.

The report of the Crucible Steel Company of America for the six months ended February 28, 1909, compared with the same period a year ago, makes the following showing:

	1909.	Increase.
Net earnings after expenses	$967,036	$789,467
Reserve for contingencies	19,341	13,505
Surplus	$947,695	$775,962

The company gives out the following statement:

"Notwithstanding the heavy shrinkage in our inventory values the result of the past three months shows a net profit of $555,823, or at the rate of 8 per cent. per annum on the preferred stock, an increase of $144,610 over the previous three months. The condition of the company's plants has been in all cases fully maintained, $301,280 having been spent during the past six months in renewals, repairs and improvements. The economic working of all branches of the company's business has resulted in the surplus February 28 being $2,640,589, an increase of nearly $1,000,000 in the past six months. This is almost up to the maximum surplus recorded in the company's history, plainly showing that the company has now practically reached its former strong financial condition.

"On February 20, suddenly and without intimation, the United States Steel Corporation announced a severe drop in the selling price of lower grades of steel, thus eliminating much of this class of business from the company's books. With a determination to push the sale of the principal products of this company, the tonnage of crucible and special steels has been steadily increasing week by week, so that during the first 10 days of March the increase in the higher grades of steel has amounted to over 10 per cent. compared with the same period in February, and that the return from this class of business has been such as to make up for the loss in common steels both in sales and tonnage."

The J. B. & J. M. Cornell Company in Receivers' Hands.

The J. B. & J. M. Cornell Company, fabricator of structural iron and steel and manufacturer of sugar making and other machinery, with offices at 601 West Twenty-sixth street, New York, and a plant at Cold Spring, N. Y., went into the hands of receivers March 22, a petition in involuntary bankruptcy having been filed against the company in the United States District Court. The petitioning creditors were the Bethlehem Steel Company, $40,655 for steel; Froment & Co., $5341 for steel and iron, and T. P. Kelly & Co., $378 for merchandise. Michael Blake of John Leonard & Co., 149 Broadway, and A. Gordon Murray, attorney at 60 Wall street, were appointed receivers.

In the application for the receivers it was stated that the company had uncompleted contracts on hand for work to be performed in this city and elsewhere amounting to $1,000,000, and it was necessary to keep the business running, as there were 500 persons employed in the plant at Cold Spring. The plant at Cold Spring is covered by a mortgage to secure bonds of $600,000, the coupons on which for some time have not been paid; several suits are pending against the company, and accounts for merchandise and materials are long past due.

Attached to the application for the receivership was a letter from John M. Cornell, president of the company, stating that he was in sympathy with the application of creditors for the appointment of Michael Blake as receiver. Mr. Blake says that he expects the receivership to be temporary only and that a reorganization of the company will be effected within two months.

The annual report of the company of January 1, 1908, showed liabilities, $1,271,939, including bonds, and active assets, $2,178,472, in addition to which there were inactive assets, $1,550,652. The business was started in 1847.

THE IRON AGE

Established in 1855.

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Wage Readjustments and Iron and Steel Prices.

Each week brings new announcements of wage reductions in the iron industry. The effort to hold prices on iron and steel products throughout 1908 carried with it the maintenance of wages so far as rates were concerned, though there could be no protection to labor from the serious reduction in income due to the curtailment of working time. Now comes a reduction in the daily or hourly wage, which temporarily may result in some further decline in the weekly income. In time it is to be expected that the lower prices of products which have forced the reductions in wage rates will increase consumption, and in this way a gradual recovery of incomes of iron and steel workers will take place through better working schedules. Naturally more or less connection will be found, according to some diagnoses of the situation, between the reductions in tariff schedules and the readjustments of wages; but whatever additional strain may have come through the withholding of business or otherwise, because of tariff uncertainties, lower wages have always come in the wake of panics and may be regarded as inseparable from the creation of a large supply of surplus labor.

It is hardly profitable to discuss the question whether the situation would now be better from the standpoint of labor had the readjustment of wages and iron and steel prices come in 1908. Each period of reaction has features peculiar to itself. There was a political embargo on business last year, and following that the tariff revision was a certainty. Therefore, the argument put forward frequently last year that the policy followed by the steel manufacturers was lengthening the period of distress and preventing a speedy return of prosperity is not entirely convincing. There were very speedy readjustments in 1893, but the dragging years that followed disclosed new low points both for commodities and wages.

Some of the prices made since the declaration of the open market for iron and steel indicate that the hardships of certain manufacturers are as real even if not as acute as in the last period of general wage readjustments at steel works and rolling mills. We have not an iron industry prostrated by many months of low demand and profitless prices; but there is such competition for business in some lines as has brought prices relatively lower than those reached in the low record months of 1897 and 1898. Measured by the prices of ore and pig iron it may be reckoned that 1.10 cents a pound for structural shapes to-day is lower than .90 cent a pound in 1898. Bessemer pig iron could be had at $9 a ton then, while more than $6 a ton above that price is the market to-day. Similarly some of the prices which large buyers of bars have announced as the expected basis of their contracts for next year are considerably below the low point of 1898, taking account of the much lower basis then for raw materials and labor.

In structural material the low level reached in recent sharp competition is evidently having the usual effect. The railroads are showing more interest than in many months in carrying out plans for bridges and track elevation, and there is now under consideration a large amount of steel building construction by investors who are finding present inducements a temptation to let loose their funds. There is no reason to doubt that the old cycle will be repeated and that once more the steel trade will find its way up by getting down. In the interest of both manufacturers and employees it is to be hoped that the period of profitless prices will not be too long drawn out.

Adjusting Water Losses on New Machinery.

The subject of the adjustment of fire insurance on new machine tools where the loss is restricted to water damage was discussed in *The Iron Age* of June 18, 1908. Since then there has been further inquiry into the question, which is one of importance and worthy of careful consideration. The attitude of the insurance companies in these cases until recently has been that the loss should be considered trifling. Their adjusters have been unable to grasp the possible damage to important hidden parts, which constitute essential elements in the precision and durability of a machine. Nor have they understood the difficulties which must accompany the ascertaining of the exact loss; what it means to take down a machine and set it up again; and the impossibility in most cases of doing this work on a large scale outside of the shops of the builders. These are essential factors in determining a water loss.

In view of the current discussion of this matter, the article above referred to may be cited as presenting a fair solution of the problem. The storehouse of a large dealer was wet down. There was absolutely no loss from fire or heat, but a great deal of water was poured in. Immediately after the fire was extinguished men were set to work cleaning the tools, removing all outward traces of water, until the stock looked to be as good as new. The insurance companies' adjusters claimed that the loss was slight, and therefore would make little allowance beyond the expense of the cleaning. The answer of the dealer was that it would be impossible to tell what loss had been incurred, unless the machines were taken down in the shops of their builders; that idle machinery, especially when new, is liable to serious injury from water, particularly in the bearings, and other parts which cannot be reached. Consequently it would be impossible to sell the stock with the usual guarantee accompanying new machinery. It could be sold, however, at a discount, without a guarantee, for customers would be willing to take the chance of impaired usefulness in exchange for, say, a 10 per cent. reduction. The inducement would be particularly strong when business was not so brisk as to prevent the convenient overhauling of the purchases in the buyers' works. The dealer's proposition was that the insurance companies should bear the loss represented by this shrinkage. An alternative suggested by the adjusters was that they take over the entire damaged stock and dispose of it in the market, in the hope of obtaining the full list value, but this was abandoned after the condition of the machinery market

had been investigated. Still another suggestion of the companies was that the machinery be shipped to its home shops, but this was too expensive an undertaking to be entertained seriously. Finally the principle of shrinkage as outlined was established.

The logic of this basis of settlement is obvious. The element of doubt as to the loss is eliminated for both the dealer and the insurance people. It is placed upon the consumer who takes the chance in exchange for a reduced price. Undoubtedly, in the great majority of cases, he gets the full value of his money, and frequently his purchase may be a bargain. Another side of the insurance question is that of time. Delay in effecting settlements may be costly in the tieing up of stocks, even of machines which have been sold. The shrinkage system permits of a quick adjustment, the basis being the books of the dealer. Even where the water damage to machinery occurs in the shops of its builders, an adjustment on this same basis may be advantageous. It may be better business to dispose of the machinery as it stands than to disorganize the production of the plant by making the necessary examination and repairs, though this may depend to a large extent upon the condition of the market and the kind of machinery.

The Patent Clause in the Tariff Bill.

A tangible outcome of the agitation favoring a compulsory working clause in the United States patent laws is the section of the Payne tariff bill "applying the same rules to patents obtained in the United States by aliens as are adopted by the country of which these aliens are citizens in respect to patents issued there to citizens of the United States." But doubt has been raised as to whether such a solution of the problem would prove as satisfactory as an amendment of the patent laws establishing the principle of the compulsory working of patents in its application to all patents without discrimination.

The law as recommended by the Ways and Means Committee would establish automatic retaliation against those countries which compel the working of patents issued by them to Americans on penalty of revocation. Another purpose urged by its advocates is that it would be the basis of reciprocal relations under which American patentees abroad would receive concessions in exchange for a continuation of the present status of alien patentees in the United States. The practical result of such a statute in either of its aspects is doubted.

Practically all countries which have important trade relations with the United States have established the compulsory working of patents. Since Great Britain put its law into effect, with stringent provisions for its operation, and its tribunals have established precedents which prove that the statute is to be rigidly enforced, other European countries have been stirred to tighten up on the privileges extended by their patent offices. Their rather perfunctory enforcement of the compulsory working rule promises to come to an end quickly, primarily to meet Great Britain on its own ground, but including America in the effects of a more rigorous practice. The British law applies equally to its own citizens and to aliens. All are served alike, though in the natural order of things the foreigner must be by far the more frequent sufferer. The proposed section of the American tariff law would retaliate upon Great Britain to the exclusion of American inventors and those of some other countries. A discrimination would exist which has no place in the British practice. It is exceedingly doubtful if Great Britain would be willing or able to grant reciprocal advantages. That nation could not make the bargain that patents granted there to Americans would be made exempt from the provisions of the compulsory working clause, providing that America would continue to protect British inventions in this country, regardless of whether the patents were worked here. The British people would not permit privileges to foreigners which they did not enjoy themselves. Other nations would have just ground for active resentment. As for establishing retaliatory measures, it is a game that two can play at. Moreover, it is wholly unnecessary, for the same ends can be met by amending the patent laws, to include every patent in the application of the principle of compulsory working. No logical objection has been raised against such legislation. It would be no hardship to American inventors, unless they should choose to dispose of their rights for exclusive use in other countries, when the justness of the enforcement of the law would be as evident as in the case of an alien whose invention is protected here but worked exclusively elsewhere. There is no valid reason why the Federal Government should protect any invention which does not assist in increasing the nation's wealth, but which, on the other hand, works in competition with American industries to increase the wealth of other countries.

The law as contained in the tariff bill would probably be cumbersome in its enforcement, its practical application differing with variations in the laws of the nations of which patentees are citizens. In one sense this is a minor point, but it is worth consideration. Patent litigation is complex and costly enough under any circumstances, and if the amendment of the patent laws would serve toward a simpler procedure governing revocation cases it is a matter not to be disregarded.

The Ways and Means Committee has served a good purpose in calling attention to the injustice of the situation as it now exists, with American laws protecting the patents of aliens in this country on inventions used exclusively in other countries, while the nations of these same aliens refuse a like privilege to Americans. But the remedy is a function of the patent laws rather than of the tariff. The opportunity exists to couple with it the matter of idle patents. The British law affords an excellent basis upon which to build up the new statute, which should include, however, the essential element of the invention which is patented and never worked anywhere, a provision omitted entirely from the law of Great Britain.

The labor bureaus maintained by the various branches of the National Metal Trades Association have proved useful institutions in their ability to furnish men at short notice to meet emergencies. The sudden need of increased working forces is by no means uncommon, especially during periods of spasmodic business, like that of the last six months, and the ability to bring together a force of workmen within a few hours affords an important form of assistance. Not only are the men available, but the bureaus have their records, so that the annoyance and cost of trying out new employees, selecting the chaff from the wheat, are greatly reduced. Another form of emergency in which the labor bureau is of vital help in case of accident. Emergency work is a labor bureau function worthy of high development, and one that employers of labor should realize and take advantage of when the need arises.

Iron and Steel Duties in the Payne Tariff Bill.

Significance of the More Important Proposed Changes in Rates—Some Conflict of Sectional Interests—Wire Rods Unchanged While Most Wire Products Are Cut 25 per cent. and Wire Nails 50 per cent.

The supplement to *The Iron Age* of March 18 giving in full the metal schedule of the new tariff bill and a comparison of the proposed with the existing rates, has enabled the iron trade to measure the real extent of the changes. The iron and steel schedules in the new bill have been generally referred to in press reports as showing 50 per cent. reductions from those of the Dingley act. This is too sweeping a statement. While the duties on steel rails, splice bars, wire nails and a few minor products are reduced 50 per cent., the average of the iron and steel reductions is probably nearer 33 1-3 per cent., the range in the great majority of products being from 20 to 40 per cent.

Comment upon the bill, so far as it affects the iron trade, is that the reductions as now written into it represent in most cases the extreme, and that amendments are likely to be in the direction of lessening the cuts. Diverse interests in the trade will now be heard from and already some of the opposing views are taking shape. In particular the free iron ore provision and the 37½ per cent. reduction in pig iron will be opposed. In the following analysis and comment the significance and possible effects of some of the more important changes are pointed out:

Free Iron Ore.

The removal of the duty of 40 cents a ton on iron ore will be variously received in the trade. The proposal has been discussed for many years and has usually been advanced as in the interest of the Eastern pig iron and steel manufacturer who has a handicap in the freight he pays on lake ores. Free iron ore will be of special advantage to domestic owners of foreign ore deposits. The Bethlehem Steel Company, for example, has iron mines in the Santiago District of Cuba, which can produce 300,000 tons a year. The Pennsylvania Steel Company has the Spanish-American Iron Company properties, also in the Santiago District, and will largely increase its ore shipments from Cuba when its Mayari District mines are developed and docks are completed at Nipe Bay on the north coast of Cuba, for the handling of these ores. These two companies have imported practically all the iron ore brought from Cuba in recent years —639,000 tons in the calendar year 1906, 657,000 tons in 1907 and 580,000 tons in 1908. On these imports the duty has been 32 cents, a 20 per cent. reduction being provided in the Cuban reciprocity act. Other Eastern interests which might favor free iron are those now depending largely upon the Lake Superior region and having no mines of their own in districts tributary to their furnaces. It is to be said, however, in this connection that Eastern merchant furnace interests have not been advocating free iron ore when that proposal was coupled with a reduction in the pig iron duty equal to twice as much as the theoretical benefit of free ore. The restrictions of the Swedish Government on exports of ore from that country make very little Swedish ore available for the United States. On high authority it is said that after Germany (which takes about 80 per cent. of these ores) and England are supplied under existing contracts, not more than 100,000 tons could be had for the United States, and that at prices that might be prohibitive. Spanish ores are largely shipped to British, German and French steelmaking interests, and such as are usually shipped to the United States go rather to producers of steelmaking than of foundry irons. As a rule, only high grade ores would justify a trans-Atlantic haul.

Southern pig iron manufacturers, owning their own ores, have based their opposition to free ore on the advantage that would result to their competitors in the Eastern field, the merchant furnacemen in eastern Pennsylvania and New Jersey, to whom theoretically the wiping out of the 40-cent duty on iron ore would mean an 80-cent reduction in the cost of their pig iron. This view assumes that there are foreign ores of the kind used by these furnaces that would become at once available, with the duty off, or that foreign ores heretofore used would be sold delivered at 40 cents a ton less than before, or that lake ores would be sold cheaper in Eastern districts if the duty were taken off.

The Lake Superior ore producers have not been averse to some reduction in the ore duty. While they do not yet see any serious competition from the Canadian side, they realize that 40 cents a ton advantage over present conditions will encourage by that much the production of Canadian ores for sale in the United States.

Pig Iron.

The retention of the present duty on pig iron was especially petitioned for by the pig iron producers nearest the seaboard, including those in Virginia. In a few cases it was granted that with free iron ore a reduction of $1 a ton might not be disastrous. The committee has compromised between a 25 per cent. and a 50 per cent. reduction. At $2.50 foreign pig iron producers have had their chances of entering this market bettered by about the amount of ocean freight; or to put it another way, have the chance, whenever conditions favor imports, to penetrate considerably farther inland than before. It will be noticed that the committee has accepted the suggestion of a large manufacturer of cast iron pipe that the duty on that commodity be $3 more than the pig iron duty. Cast iron pipe is put at $5.60 per ton, or $3.10 more than pig iron. It is now $8.96 per ton.

Old Material.

The reduction in the duty on scrap iron and steel from $4 a ton to 50 cents substantially complies with the request of certain Eastern interests, steel manufacturers and others, that scrap be put on the free list. It is predicted that the railroads will strenuously oppose the change, since scrap is an important commodity which they have for sale. The opinion has been advanced in the trade, too, that the railroads could prevent a heavy influx of foreign scrap by advancing freight rates on old material, confining the importation zone to the immediate vicinity of the seaboard. In the event of such an advance, however, buyers might be depended on to invoke the Interstate Commerce Commission for the retention of the existing classification of scrap.

Ferroalloys.

Ferromanganese and ferrosilicon have been taken away from the pig iron paragraph, under which they paid $4 per gross ton, and have been included in the group of ferroalloys, under the new paragraph 182, which provides for a rate of 15 per cent. ad valorem. This brings about an advance even at the low prices at which ferromanganese and ferrosilicon are now selling. Recent transactions in ferromanganese have been made at close to $42 per gross ton, duty paid, Baltimore, or $38, c.i.f., on which the duty would therefore be, on $36 at foreign shipping port, $5.40. At times, however, ferromanganese has sold at more than double the present quotation. Ferrosilicon has been selling recently as low as $58.50, delivered, at Pittsburgh, for 50 per cent., base. Adding $1.50 per unit above the base would make the price for 56 per cent. ferrosilicon $67.50. Deducting duty of $4, freight, &c., would leave about $58 as the figure on which the ad valorem duty proposed would be figured under prevailing conditions. This would then be $8.70 per ton or more than double the present rate.

There has been a very heavy decline in the price of ferrosilicon during the past year, and the present market is not regarded as normal, so that a revival of the demand will probably lead to higher valuations, and with them to a still larger advance in the rate of duty.

On other ferroalloys present duties are $4 per gross ton, according to one judicial decision and 20 per cent. according to another; hence, if a final adjudication makes the present duty $4 per gross ton, the proposed duty of 15 per cent. would be a heavy advance, while if a final decision should make the present rate 20 per cent., the proposed duty would be a reduction. On the higher ferroalloys, which are sold in 100 to 1000-lb. lots, the proposed rate of duty may be figured as follows, at present prices, the fact being kept in mind that the ores from which they are made are duty free: Ferrotungsten is selling at 50 cents per unit, on the basis of 75 to 80 per cent. tungsten contents. The price, c.i.f., would therefore be $840 per gross ton, making the duty $126 per gross ton instead of $4 per ton. Ferrovanadium sells at $3 per pound vanadium contents, c.i.f. On the basis of 25 per cent. vanadium contents this would make the alloy cost, c.i.f., $1680 per gross ton, and put the duty at $252 per ton. The market for ferromolybdenum at the present time is 87.5 cents per pound of molybdenum contents. On an alloy containing 75 per cent. of molybdenum, the cost per gross ton, c.i.f., would be $1470, on which the duty at 15 per cent. would be $220.50.

The steel manufacturers are naturally strongly opposed to an advance in the ferroalloy duty when the duty on their own production is cut down. It will be recalled that Joseph G. Butler, Jr., Youngstown, Ohio, when he appeared before the Ways and Means Committee, said that pig iron manufacturers whom he represented would be willing to have ferromanganese put on the free list. For some time there has been very little ferromanganese made in the United States apart from the product of the United States Steel Corporation.

The advanced duty on ferrosilicon of high silicon percentages was asked for by domestic manufacturers of electrolytic ferrosilicon. In the case of ferrophosphorus the one brief filed with the House Committee came from the Rockdale Iron Company, Rockdale, Tenn., which represented that it was the only company in the world making this product in a blast furnace. It asked for a duty of $12 a ton to enable it to compete with the high grade foreign product made in the electric furnace. It was stated in the brief of this company that the total annual consumption of ferrophosphorus in the United States is about 2000 tons. Foreign ferrophosphorus at one time sold as low as $44 for 24 to 25 per cent. metal, ex duty. At the present time it is quoted at $60, ex duty, so that 15 per cent. would yield a duty of $9 per ton.

There are two new paragraphs in the bill which also may have a bearing on the subject of the ferroalloys, the first being No. 181, which reads: "Metallic mineral substances in a crude state and metals unwrought, whether capable of being wrought or not, not specially provided for in sections 1 or 2 of this act, 20 per cent. ad valorem," and the second, No. 192, which reads: "Alloys and other mixed metals in lumps, pigs, blocks, cakes, sheets or powder, not specially provided for, 20 per cent. ad valorem."

Steel Billets, Wire Rods and Wire Products.

Steel billets have been reduced from $6.72 to $3.92 per gross ton, so long as the price abroad is below 1 cent per pound, or $22.40 per ton. The duty is lowered in the Payne bill from $8.96 to $6.72 per ton when the valuation is above 1 cent per pound and not above 1.4 cents per pound. This passing up from the lower to the higher class has happened in the past. Wire rods, the next step from the billet, remain unchanged at $8.96 per gross ton, while wire nails, further advanced, have been cut in half, from 0.5 cent per pound to 0.25 cent per pound, or $5.60 per ton, or less by $3.36 per ton than the raw material from which they are made. The wire rod importations to the United States, presumably entering to a considerable extent into the manufacture of horseshoe nails, are chiefly from Sweden. That country sent us 14,278 gross tons in the fiscal year 1907, while Great Britain sent practically all the balance of about 3600 tons.

While a new provision is made that no article composed of wire shall pay a less rate of duty than 40 per cent., the wire duties which are enumerated are cut about 25 per cent., except wire nails, as stated above. Cut nails and cut spikes are not to suffer so seriously as wire nails, the proposed reduction of them being from 6-10 to ½ cent per pound. But cut tacks or brads, not exceeding 16 oz. to the thousand, are to be reduced from 1¼ to ⅝ cent per thousand, or 50 per cent.

Steel Bars and Iron Bars.

Under ordinary conditions, ordinary soft steel bars, which have been kept in the steel billet paragraph, would come under the classification of steel valued at 1 cent per pound or less, and would take the billet rate of seven-fortieths of 1 cent, or $3.92 per gross ton, although at times they might take the next higher classification, valued above 1 cent and not above 1.4 cents, with a rate of $6.72 per gross ton. Iron bars, which have been cut from six-tenths to four-tenths of 1 cent per pound, or to $8.96 per gross ton, therefore have the advantage of $4.98 per ton under ordinary conditions, and of $2.24 per ton when steel bars abroad happened to be valued above 1 cent per pound. Steel bars should be classed with iron bars, even if it were only to avoid the perplexing questions which are to arise over the determination of what is a steel and what is an iron bar. At the first session of the hearings given to steel manufacturers at Washington one of the latter urged the Ways and Means Committee to take steel bars out of the class of semifinished products and to advance the minimum on such bars from 3-10 cent per pound to 4-10 cent per pound, arguing that there is no valid reason at present for a difference between the duty on steel bars and that on iron bars.

An important change has been made in the paragraph covering steel bars by adding a provision for a 15 per cent. rate of duty and such steel valued above 30 cents a pound. This will cover high speed tool steel, which now pays 4 7-10 cents per pound on any valuation above 16 cents per pound. The proposed increase in duty is marked, as steel valued at, say, 75 cents per pound, would then pay 11¼ cents instead of 4 7-10 cents.

Charcoal Iron Bars.

The bar iron paragraph contains the provision for a special duty on "all iron bars, blooms, billets or sizes or shapes of any kind in the manufacture of which charcoal is used as fuel," which has been incorporated in every tariff act beginning with the act of 1883. The history of this provision is interesting. It was incorporated at a time when considerable charcoal iron was finished in the form of bars, and manufacturers in that branch of business entertained the hope that the industry might be encouraged and stimulated by the imposition of a somewhat higher duty than that levied on ordinary bar iron. The act of 1883 fixed a duty of 8-10 cent per pound, or $17.92 per gross ton, on ordinary bar iron, and $22 per gross ton on charcoal iron. This arrangement was permitted to pass unchanged in the act of 1890. New conditions arose, however, by the time the act of 1894 was passed, and the manufacturers of crucible steel who were large importers of charcoal bar iron made in Sweden, knowing that the charcoal bar iron industry of this country had declined rather than grown, made an effort to secure a more favorable rate of duty for them on this important raw material, and charcoal bar iron was then fixed at $12 per gross ton, although the duty on ordinary bar iron was made 6-10 cent per pound, or $13.44 per gross ton. These rates were continued in the act of 1897 and are still in force. It is now proposed that a duty of $6 per gross ton shall be levied on charcoal bar iron while ordinary bar iron will be dutiable at 4-10 cent per pound, or $8.96 per gross ton. Thus it will be seen that an effort to get a higher rate of duty on a special product singled it out as a target for attack. The statistics for the fiscal year 1907, which are the last published returns giving the sources of the various imports of iron and steel, show that out of 38,600 gross

tons of bar iron imported, 36,000 tons, or more than 90 per cent. came from Sweden. Thus the charcoal fuel provision of the proposed tariff would let in nearly all our bar iron imports at a duty slightly above ¼ cent per pound.

Structural Steel and Plates.

Structural shapes and plates are made to reverse their present positions as to rates of duty. Structural shapes now pay $11.20 per gross ton and plates valued above 1 cent and not above 2 cents per pound pay $13.44. The proposed rates are $6.72 per ton on shapes and 20 per cent. on plates, which on the basis of present foreign prices, would be about $5 per gross ton on ordinary tank or ship plates. It is an interesting question how much the statements made by lake shipbuilders concerning export sales of plates to British yards at less than prevailing domestic prices had to do with the above change.

Steel Rails, Splice Bars and Axles.

The obvious concession made to railroad interests in cutting the steel rail duty from $7.84 to $3.92 per gross ton is followed up in cutting fish plates or splice bars from $8.96 to $4.48 per gross ton. As soft steel bars of corresponding value are scheduled to pay $6.72 and ordinary bars $8.96, the proposed duty on both steel rails and fish plates would seem to be much out of line, as far more work is required in finishing them than in finishing bars. The axle duty, however, is retained at 1 cent per pound, or $22.40 per gross ton. Car wheels and tires for locomotives and other car wheels are likewise treated considerately, the proposed reduction being from 1½ to 1¼ cents per pound, or from $33.60 to $28 per gross ton.

Machinery.

Machine tool manufacturers have had their views acceded to by the injection of a new paragraph naming their products with cash registers, electrical apparatus and machinery, sewing machines, printing machinery, steam engines and typewriters as subject to only 30 per cent., against the present rate of 45 per cent.

Miscellaneous.

In the main, present rates on miscellaneous manufactures of iron and steel are not changed, but in some instances advances are proposed, as in the case of razors, swords and sidearms. Knives used by various mechanics and artisans are to be slightly reduced, and the general rate on cutlery not otherwise specified is to be 40 per cent., as against the present rate of 45 per cent.

Two carloads of contractors' equipment, consisting of engines, boilers, steam drills, derricks and other machinery, have arrived at Grand Falls, New Brunswick, Canada, and are now being set up for the beginning of operations in the construction of the great hydro-electric power plant. William Askin and Clarence A. Conrad, representing the Frank B. Gilbreth organization, New York City, are in charge of the preliminary work. W. B. Laine, general manager for the Frank B. Gilbreth organization, has placed large orders for supplies in St. John. Air compressors and much of the electrical machinery for the temporary power plant will have to be made to order, as such large machinery is not carried in stock there and it is almost impossible to secure second hand. The development of 100,000 hp. at Grand Falls is of great importance to the province of New Brunswick, as it will induce new manufacturing industries on account of the low price for power that will be secured from the undertaking when completed.

The Firth-Sterling Steel Company, Pittsburgh, has received an order from the Navy Department for 3000 12-in. armor piercing shells at $197.50 each, or a total of $592,500. These shells will be built at the new plant of the company located near Washington, D. C. In this connection it is of interest to note that the Firth-Sterling Steel Company for some time has had in operation at its plant in the Pittsburgh District a small Heroult electric furnace, of the type which has been recently adopted by the United States Steel Corporation. The furnace is stated to have given quite satisfactory results. The Bethlehem Steel Company, South Bethlehem, Pa., has been given orders for 1000 10-in. shells at $131.41 each and 2000 8-in. shells at $67.18 each.

The Tariff Bill's Prospects.

Likely to Be Amended in Important Particulars.

WASHINGTON, D. C., March 23, 1909.—The new tariff bill introduced in the House on the 17th inst., referred to the Ways and Means Committee and reported back on the following day, was taken up yesterday morning and general debate upon its provisions begun. No plan has yet been formed for closing general debate or for reaching a vote upon the measure, but the Republican leaders hope that after the general discussion has proceeded for about a week the House will be willing to take it up by sections under the rule limiting speeches to 5 min., and that a final vote can be had not later than April 15.

Effects to Secure Amendments.

The heavy cuts made in the iron and steel schedule, the numerous reductions in the chemical schedule, the 50 per cent. cut in the duty on rough lumber, the transfer of hides to the free list and other changes in the bill have aroused the opposition of the representatives of many important interests, some of whom are already on the ground here seeking amendments either in the House or Senate. The bill as reported is not only unsatisfactory to many producers because of the reductions provided therein, but is very defective with respect to the relation preserved between raw materials and finished products. This latter shortcoming is especially pronounced in the chemical schedule, and to some extent is due to the ignorance of the members of the committee regarding the science of chemistry and its industrial processes.

Many of the blunders made by the committee in drafting the bill will be corrected in a series of amendments which will be proposed on the floor, probably by Chairman Payne, when the measure is taken up by sections under the 5-min. rule. These amendments will include such changes urged by representatives of the protected industries as the committee may accede to while the general debate is in progress. The decision of the committee to report a series of amendments will furnish an opportunity for any interest desiring changes to place the matter before Chairman Payne or some other member of the committee, or before W. K. Payne, son of the chairman, who is serving as the committee clerk. While no further formal hearings will be granted, all the members of the committee are accessible at almost any hour except when the House is actually in session. Suggested amendments to which there is no special opposition will no doubt be readily accepted by the committee and if reported as "committee amendments" they are almost certain to be adopted, as nearly the entire Republican side of the House will stand behind the chairman, except in the case of items over which there is a well defined split in the party. In case the committee declines to accept amendments presented to it, it will be in order to interest the Representative from the Congressional district of which the party desiring the modification is a resident, and frequently it will be found entirely practicable to secure on the floor changes which the committee would not voluntarily make.

When the tariff bill passes the House it will be immediately referred to the Senate Finance Committee, where for a period of about two weeks there will be an opportunity to secure changes in the measure upon application to Chairman Aldrich and his colleagues. That committee will not give formal hearings, but all of its members will receive courteously any one interested in securing changes in the bill, and from present indications the provisions of the Payne measure will be thoroughly overhauled and comprehensively revised. Chairman Aldrich and several members of the Senate Committee who have been examining the bill have already criticised it severely and it is a foregone conclusion that the real battle over the measure is to be fought out in the Conference Committee, to which it will be referred after it has passed both Houses.

A movement is on foot to bring about a combination among members of Congress representing districts which

it is claimed would suffer should the Payne bill be passed in its present form. These Representatives include those hailing from districts in which iron and steel, coal, lumber, hides, chemicals, &c., are produced, and a sufficient number of votes is said to have been pledged to secure many important changes in the bill. The combination of Republicans, however, is handicapped by the fact that nearly all the Democratic members of the House will support Chairman Payne in any proposition to reduce duties.

The House leaders have been rendered decidedly anxious concerning the fate of the maximum and minimum feature of the new tariff bill by the harsh criticisms leveled against it by Chairman Aldrich of the Senate Finance Committee, who has pronounced it unwise and impracticable.

Flaws in Reciprocity Sections.

The Senate leaders assert that any attempt on the part of the United States to impose maximum or retaliatory duties upon products of a foreign country, while at the same time conceding to Cuba a reduction of 20 per cent. from the general or minimum tariff rates of the new law, would develop an untenable position and certainly precipitate a tariff war. The combination of the two sections represents an entirely novel tariff plan, for, while examples may be found in the tariffs of the leading countries of the world of either retaliatory or reciprocity schemes, no known tariff represents a combination of both. Under the law as proposed, such a product as sugar, for example, might pay three different rates of duty—namely, the reciprocity rate on importations from Cuba, the general rate on importations from countries grating the most favored nation treatment to products of the United States and the retaliatory rates on importations from countries refusing such treatment.

Attention is also called by the Senate leaders to what is obviously a blunder in the proviso at the end of section 4 to the effect that retaliatory rates shall not be levied in cases "where the preferential duties to other countries are those which are given by a province, dependency or colony to the mother country only." Under this proviso the United States could not retaliate for concessions made by a colony to the mother country, but would be obliged to levy additional duties in case the mother country favored the colony. The proviso was doubtless intended to be reciprocal as between the mother country and the colony, and Chairman Payne has already announced that an amendment to this effect will be reported by the Ways and Means Committee before the bill is voted on.

Liberal Drawback Section.

No feature of the new bill has attracted more attention than the exceedingly liberal provisions regarding drawbacks. The first paragraph of the drawback section embraces the so-called substitution principle employed for many years in the French drawback law with great benefit to many industries. Under its provisions manufacturers are relieved from the requirement of the present law that the imported materials "shall so appear in the finished product as to be capable of identification." So long as a manufacturer can produce a certificate of importation covering a quantity of materials equal in amount and productive efficiency to those necessary to produce the article exported, he may either utilize the materials imported or substitute therefor domestic materials. Furthermore, a manufacturer whose plant is located at San Francisco, for example, may purchase a certificate of importation from a person who has brought in a certain amount of imported materials at New York and may utilize it as a basis for drawback allowance on the exportation from the Pacific Coast of goods made of domestic materials, thus not only utilizing the drawback but saving the cost of transporting the materials from ocean to ocean. Inasmuch as the importation of an equivalent amount of foreign materials and the exportation of the finished product are conditions precedent to the allowance of drawback, it is obvious that no domestic interest can suffer.

The second paragraph of the drawback section embraces a careful revision of section 12 of the Dingley act, which permits materials of foreign production necessary for the construction of vessels built in the United States for foreign account and ownership to be imported in bond conditioned upon their use for the purpose indicated. In the new section the goods brought in are not bonded, but duty is paid thereon and drawback subsequently allowed upon the departure of the vessels in the construction of which they are employed. The second and third paragraphs permit drawback of duty to be paid on all materials consumed on vessels clearing for foreign countries. The present drawback law has been construed by the courts to forbid refunding of duties on goods used as ships' stores on the ground that such articles, not being landed in a foreign country, are not "exported" within the meaning of the statute. W. L. C.

Rocky Mountain Coals Tested for Coking.

Investigations conducted in 1908 at the fuel testing plant of the United States Geological Survey at Denver, Colo., of the washing and coking of the coals of the Rocky Mountain region have just been reported upon. In the time that the plant has been in operation results have been achieved which will prove of the greatest importance to the entire western part of the country. Of 37 coals tested from the Rocky Mountain region, all but three produced good coke under proper treatment, though a number of them had been considered non-coking.

A bulletin detailing the tests conducted at the Denver plant by A. W. Belden, G. R. Delamater and J. W. Groves has just been issued by the Technologic Branch of the Geological Survey. In this bulletin, the following general statement is made by Mr. Belden:

"The investigations described in this report were undertaken for the general purpose of increasing efficiency in the utilization of the fuel supply of the United States by devising improvements in washing and coking coals, these being two of the methods of conserving one of the country's most important natural resources. Specifically, the washing tests of coal were made to determine the possibility of so improving the quality of the coal as to render it available for the production of coke, for the coal used in coking must be as free as possible from ash, sulphur and other impurities, because of its prospective use in metallurgical processes. The coking tests were made to determine the possibility of utilizing the various coals in this way, or to devise improvements in coking practice. The washing tests have already demonstrated the fact that many coals which are too high in ash and sulphur for economical use under the steam boiler or for coking may be rendered of commercial value by proper treatment in the washery. The coking tests have demonstrated that many coals which were not supposed to be of economical value for coking purposes may be rendered so by proper treatment in the washery and coke oven. Of more than 100 coals from the Mississippi Valley and the Eastern States, some of them regarded as non-coking, which had been tested at St. Louis in 1906, all except six had been found, when carefully manipulated, to make fairly good coke for foundry and other metallurgical purposes, and similar results with western coals have been now obtained at Denver.

"The tests detailed in this bulletin are a continuation of the work started several years ago in St. Louis at the Government fuel testing plant there. On the completion of the work at St. Louis the writer made a trip through the Rocky Mountain region for the purpose of selecting a site for washing and coking tests on coals of the western half of the United States, with the hope of getting into closer touch with the fields from which little or no coal had been received at the testing plant in St. Louis. The different points available were visited, and after investigation Denver was selected as the most suitable on account of its central location and railroad facilities."

C. R. Rothwell, Columbia Bank Building, Pittsburgh, Pa., has taken the agency in the Pittsburgh District for the Wing turbine blower system of mechanical draft, made by the L. J. Wing Mfg. Company, New York City.

FERROTITANIUM STEEL RAILS.

The Experience of the New York Central Lines—Excellent Results Secured Under the 1908 Specifications.

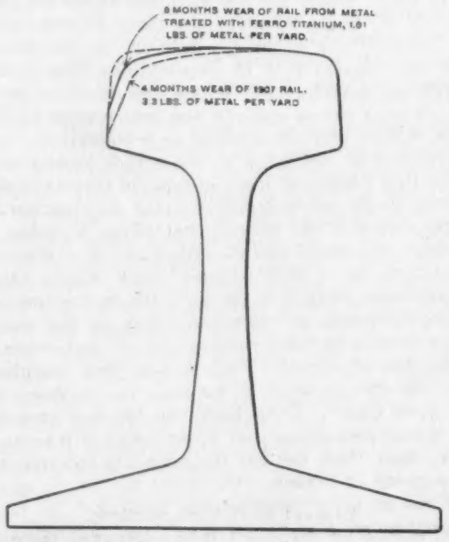
At a number of Bessemer steel works the use of titanium alloy for rail steel has been introduced in the past 18 months and a considerable tonnage of titanium rails has been placed in service. The New York Central Lines have gone most extensively into the development of the ferrotitanium rail under the direction of the well-known rail expert of that system, Dr. P. H. Dudley. The rail problem of the New York Central is different from that of many lines, in that it has a considerable mileage of track in higher latitudes. At several points on its lines the temperature falls at intervals in the winter to 30 degrees below zero and even to 40 below. Rail failures in such districts in some recent winters were frequent. To put an end to these breakages has been a firm determination of the management and imperative orders were given that in the framing of specifications every consideration was to be subordinated to securing rails which would be safe as girders in the track. Secondarily everything possible is done to secure a grade of steel that will resist wear, but safety is a controlling condition. Thus there has been some reduction in the permissible percentage of carbon. In 100-lb. rails for the New York Central, whereas 0.55 to 0.65 per cent. carbon was once specified, when 0.06 phosphorus was the maximum, the present carbon maximum is 0.55 per cent. for a 100-lb. rail, 0.53 per cent. for an 80-lb. rail and 0.50 per cent. for a 75-lb. rail. Since the responsibility for results has been assumed by the railroad, as represented by Dr. Dudley in all its dealings with the rail mills, its specifications have been largely tentative in the past year and a half. At the April, 1908, meeting of the American Railway Association, Dr. Dudley detailed the experiments made in the shaping of these specifications, and the manufacture of rails under them, with certain adaptations to conditions existing at different mills, has proceeded satisfactorily in the past year. In the above paper reference was made to the requirement that for 100-lb. rails not more than three 33-ft. rails be rolled from an ingot, and for 80-lb. rails not more than four. Short, stubby ingots are preferred, those whose length is two and one-half to two and three-quarter times the larger dimensions of the base. In no case must the length exceed three times the larger dimensions of the base, the ingots usually dealt with being 19 in. square on the base.

Rails from Steel Treated with Ferrotitanium.

Referring first to the ferrotitanium rails, their manufacture has been carried on principally at the Lackawanna Steel Company's works at South Buffalo, N. Y. It is probably more correct to speak of these rails as rails made by a process involving the addition of ferrotitanium to the molten metal, since titanium may or may not be found in the rolled product. In general it passes off in the slag, whereas in the case of nickel steel rails or manganese rails, for example, the alloy produces its effect by remaining in the steel. For the electric division of the New York Central, extending from New York City to Mt. Vernon, 5000 tons have already been delivered. For the Boston & Albany 7000 tons have been ordered and a portion of the order has been delivered. For curves on the Pennsylvania Division 2400 tons have been ordered. Some of the titanium rails laid on the electric division were put into a crossover at Fifty-sixth street, Grand Central Station, New York, which is the equivalent of a 10 per cent. curve. In six months the titanium rails have lost from flange wear less than one-third of the amount of wear occurring in four months with the ordinary 1907 rails which preceded them. The accompanying diagram compares the wheel flange and tread wear of the Bessemer rail of 1907 on this crossover with that of the ferrotitanium treated Bessemer rail of 1908. The chemical composition of both rails was as follows: Carbon, 0.45 per cent.; manganese, 0.96 per cent.; silicon, 0.13 per cent.; phosphorus, 0.095 per cent. The ingots from which the rails were rolled were sound, without exterior or interior blowholes or decided segregation.

The use of titanium alloy, it is found, has added to the soundness of the ingots and the homogeneity of the metal, largely eliminating blowholes. It has added to the wearing qualities of the steel, being particularly of service in the case of Bessemer metal of as high as 0.10 per cent. phosphorus, in which the carbon must be kept down. Thus with titanium the prime requisite of safety is secured and at the same time a much greater resistance to wear than is found in the plain rail.

The increase in the cost of ferrotitanium rails naturally depends on the amount of the alloy added. The addition of crushed ferrotitanium is made in the ladle as the steel is poured from the converter. The percentages used have varied. Some of the rails already laid


6 MONTHS WEAR OF RAIL FROM METAL TREATED WITH FERRO TITANIUM, 1.01 LBS. OF METAL PER YARD.
4 MONTHS WEAR OF 1907 RAIL. 2.3 LBS. OF METAL PER YARD

Comparison of Four Months' Wear of Bessemer Rail of 1907 and Six Months' Wear of Ferrotitanium Bessemer Rail of 1908 in the 10-Degree Curve of the Fifty-sixth Street Crossover of the New York Central Lines, Grand Central Station, New York. Both 6-In. 100-Lb. Rails of Dudley Section.

are from steel to which an addition of 75 lb. of ferrotitanium of a 10 per cent. alloy was made for 8.8 tons of steel, and in some cases a less percentage of ferrotitanium was used. By the above additions of ferrotitanium and a 9 per cent. crop satisfactory wearing quality has been secured in addition to the necessary ductility to insure against breakages. Such an addition of the alloy and the extra time called for in the Bessemer department by the requirement that heats be held after the addition of the alloy, would mean an additional cost of about $2 a ton for ferrotitanium rails. With larger additions of the alloy and larger crops the additional expense would naturally be greater.

Original New York Central Specifications.

As has been indicated by the papers presented by Dr. Dudley before various associations, the New York Central & Hudson River Railroad has been accumulating valuable data relating to rail wear and rail failures over a period of years. It was the practice in the manufacture of rails at Bethlehem and Scranton, Pa., in 1891 to 1898 for the New York Central lines to require as low as 0.06 per cent. phosphorus, while carbon ranged from 0.55 to 0.65 per cent. for 80 and 100 lb. rails. These were

all made from Bessemer steel and the heats were held after recarburizing to permit of the completion of the chemical reactions and the escape of the deoxidation products. The heats also were poled with a green wood pole to induce a violent agitation. The ingots were teemed with 1½-in. nozzles in pits and after stripping were thrown down in horizontal position in the pit, being then picked up by cranes, laid horizontally on cars and charged into horizontal heating furnaces. Throwing ingots down and charging into horizontal furnaces is, of course, not now considered the best practice, yet it has been found that after the long service of the rails produced in the period mentioned but few split heads have developed. Of the rails made at Scranton, covering more than 500,000 tons, not more than 25 split heads have been found in New York Central sections of 80 to 100 lb. rails. A few more failures from split heads have occurred on the Boston & Albany, but in many of these cases the split was due to the fact that the short 20-in. splice bars had become worn and permitted increased shocks at the ends of the rails.

More Time Required by 1908 Specifications.

The recent or 1908 practice of the New York Central Lines has been a return to the earlier Bessemer practice which yielded such satisfactory results. The slower pouring secured by the smaller nozzle is one feature, the 1½-in. nozzle being required, as against the 2½-in. size commonly used. The holding of the metal in the converter after the recarburizing additions is also required; but where the recarburizer is added in the ladle the metal is held in the ladle for the completion of the reactions. It seems to be the purpose of the New York Central to return to such of the mill methods followed in the 90's as have been found to contribute to the production of more satisfactory rails. It is recognized that the limited supply of low phosphorus ores compels the acceptance of practically 0.10 per cent. in phosphorus and therefore that a considerable reduction in carbon must be made to insure against breakages in track. It is stated that out of 80,000 tons of rails laid in 1908, the first of these going into track in the late spring, while most of the remainder were laid before August, only four broken rails have been reported in the last winter. It is true the winter of 1908-1909 has been exceptionally mild; but even so, some of the districts traversed by the New York Central Lines have had temperatures in the past winter continuing well below zero for several days.

The New York Central Railroad has recognized that the methods of manufacture called for by its specifications result in a considerable reduction in tonnage. Whereas in some mills the time from the beginning of the blow to the teeming of ingots has been not more than 9 min., from 20 to 22 min. is required for steel entering into New York Central rails under the 1908 specifications, the longer time being necessary in the case of the ferrotitanium rails. As different conditions exist at different plants it has not been thought best to make a positive specification, but the requirements have varied somewhat, depending in part upon the plant and upon the kind of rails being manufactured, whether plain Bessemer or open hearth rails, or rails rolled after the addition of ferrotitanium to the molten steel.

The small percentages of seconds turned out at the Buffalo mill, where a considerable portion of the New York Central tonnage has been rolled in the past year, particularly the ferrotitanium rails, is worthy of note. On one recent day when working on ferrotitanium rails the seconds amounted to but 0.6 per cent., and on another day to 0.8 per cent., whereas in the case of rails made according to the generally accepted specification, 2 to 3 per cent. of seconds represents excellent practice, and considerably higher percentages are not unusual. It can be understood that such satisfactory results have been procured only by the co-operation of the mills and the railroad company. The latter has freely given the mills the benefit of its experience and all the data it has accumulated. On the other hand it stands ready to change its specifications so as to avail itself of any advanced practice that may be developed by the mills. It has placed some orders for open hearth rails and is noting carefully the results secured with such rails in track. It is also interested in what may develop from the use of the electric furnace for the purification of rail steel.

A New Head of Steel Corporation Iron Mines.

Thomas F. Cole Succeeded by William J. Olcott.

With the resignation of Thomas F. Cole from the presidency of the Oliver Iron Mining Company, as announced this week, a remarkable administration comes to an end. Since Mr. Cole went to Duluth in 1901 to take charge of the vast interests of this company, it has been a time of constant acquisition of mining properties, now reckoned to be well toward a close; of changes and development in manner of operation; of tremendous acceleration of production; of refinements in methods. The Oliver Iron Mining Company, with an annual production which has exceeded 20,000,000 tons of ore, with its 17,000 employees, with a short season of shipment and unskilled and difficult labor with which to contend, with most of its mines situated in an unfriendly Commonwealth, has needed at its head a man of unusual characteristics. Mr. Cole has shown originality combined with conservatism. A keen judge of men and affairs, his decisions have been prompt and correct, and to his mastery of mining are added enormous endurance and capacity for work. For 35 years he has been an important factor in Lake Superior mining, and the forward movement in methods in that period has been no less remarkable than the growth of annual production from less than 1,000,000 tons to a total in 1907 of more than 42,000,000 tons. Mr. Cole brought rare fitness to the work he has had to do in the period of the organization and development of the United States Steel Corporation. In the past few years he has been the guiding spirit of organizations that are building up to an annual production of more than 200,000,000 lb. of copper, one-fifth of the supply of the United States. These will now receive his undivided attention.

Mr. Cole's successor in the presidency of the Oliver Iron Mining Company is William J. Olcott, who has been connected with iron ore mining on Lake Superior since the early 80's. In common with many of the leaders in the profession, Mr. Cole among the rest, Mr. Olcott's entry into the iron ore business was at that great school on the Menominee range, the Chapin mine. Perhaps no mine ever turned out such an impressive roll of graduates as the old Chapin. Mr. Olcott was in charge of operations on the Gogebic range for the Penokee & Gogebic Development Company, the Rockefeller organization, prior to the discovery of the Mesaba range, and 15 years ago moved to Duluth to take active charge of the Rockefeller properties on the Mesaba range—the Lake Superior Consolidated Iron Mines. With the purchase of these by the United States Steel Corporation through the Oliver Iron Mining Company in 1901, Messrs. Cole and Olcott became associated in the management of the latter company as president and manager, respectively. Mr. Olcott's genius for organization, his ability as a miner, his thorough knowledge of the Lake Superior iron ore region, his capacity for the broad view, and with this his success in handling men, are all well known. Under his management costs of producing ore have been notably reduced, and the methods that have been introduced under his direction have been studied widely and copied extensively.

The Pennsylvania Engineering Works, New Castle, Pa., is building a 300-ton metal mixer for the La Belle Iron Works, Steubenville, Ohio, which is a duplicate of those used at the Gary plant of the Indiana Steel Company. The company is now going ahead with the construction of a blast furnace for the New York State Steel Company at Buffalo, N. Y., work on which was suspended a year ago last November. It also has a contract for building the greater part of No. 3 blast furnace for the Tennessee Coal, Iron & Railroad Company, Ensley, Ala.

Prospects of Reciprocity with Canada.

TORONTO, March 20, 1909.—If when it comes out of Congress the Payne tariff bill is anything like the same measure it was when it went in, its enactment will mean the ushering in of a new state of trade relations between the United States and Canada. That, at all events, is the opinion of many public and business men in this country, as indicated in newspaper interviews at various trade centers in the Dominion. That Canada will receive the benefits of the minimum tariff is regarded as extremely probable. That her general tariff is low enough to entitle her to the favors of the Payne bill may not be admitted in Washington, though it seems to be a fact that Canada's general tariff is quite as low as the one proposed as the minimum tariff of the United States. Nor can it be said that Canada at present discriminates in a trade way against the United States. Canada's preference to the mother country would doubtless be considered a domestic matter, relating to the internal affairs of the British Empire. Other foreign nations, Germany alone excepted, take that view of it. France, for example, did not withdraw most favored nation privileges from Canada, though the Canadian preference to Britain was conceded five or six years after the Franco-Canadian treaty of commerce was concluded and while it was yet in force. But if the preference to Britain would not be looked upon at Washington as a concession from the Canadian tariff which must be made to the United States before the privileges of the latter's minimum tariff could be given to Canada, the favors conveyed by Canada to France in the new commercial treaty pending between the two countries would be considered on another footing.

Canada's Intermediate Tariff.

It is recognized that the United States would probably require, as a condition to the admission of Canada to the benefits of the minimum tariff, that the benefits of Canada's intermediate tariff be thrown open to the United States. France gets the benefits of the intermediate tariff, and on some of its products of still more favorable tariff treatment by Canada. It is expected that Germany will negotiate a treaty with Canada, wherein will be exchanged German market advantages for the benefits of Canada's intermediate tariff. Still other countries are understood to be ready to negotiate with Canada, Italy being mentioned in particular. It is thought unlikely that the United States would put Canada on the list of countries admitted to the benefit of the Payne minimum tariff so long as the United States should be excluded from the benefits of the Canadian intermediate tariff.

If the arrangements proposed in the Payne bill with reference to maximum and minimum duties are finally adopted, reciprocity between the United States and Canada will be a matter simply for the consent of the two administrations concerned—that at Washington and that at Ottawa. There will be nothing left for the national legislature in each case, for, as the Payne bill leaves to the Executive the opening or the closing of the minimum tariff privileges, so the Canadian tariff act leaves to the Governor in council the granting or withholding the benefits of the intermediate tariff. The two countries could thus be put on the mutual footing of the most favored nation without the concurrence of Congress or Parliament and without the establishment of any formal treaty. All that would be necessary is the announcement of each government that the goods produced under the other government are to be admitted on the lowest tariff terms the law puts within the reach of any foreign country. It is believed that the present Canadian government will be at least as willing to come to a reciprocity understanding with the United States as with France or any other country.

Past Work for Reciprocity.

It will be remembered that the first work to which the Laurier government put its hand after coming into office 12 years ago was the effecting of a reciprocal agreement with the United States. For that principal purpose the government did everything possible for the instituting of the Joint High Commission, which was subsequently formed and to which was referred several other questions of common concern to the United States and Canada, as well as the question of reciprocity. The Alaska boundary controversy proving a stumbling block, the commission suspended its labors without bringing them to a conclusion on any point. But though reciprocity was thus sidetracked and though the preference to Britain seemed to be a sharp turn to another quarter for commercial relations, reciprocity with the United States has always been regarded by the present government as the most rational trade policy for Canada. The only change in respect to it that took place was this: the Laurier government ceased to importune the United States government for closer commercial intercourse, and became self-controlled enough to wait until it should be asked to join in more intimate relations.

There is reason to believe that the present Canadian Government would consider the privileges of the Payne minimum tariff a fair exchange for those of our intermediate tariff. That the majority of the Canadian people would take the same view is to be doubted. The part of the population west of the Great Lakes would be certain to welcome such a bargain, but the manufacturing interests of the old provinces would be averse. Equally averse would be the exporters of Great Britain, to whom the arrangement would be almost tantamount to the loss of their preference in this market. The intermediate tariff is not quite as low as the preferential tariff, but the proximity of the United States to Canada would count for many times more than the difference. British newspapers on the side of tariff reform are urging the increasing chances of reciprocity between Canada and the United States as a reason for making haste in the adoption of a British tariff with exemptions in favor of staple imports from Canada. Canadian advocates of an imperialistic trade policy are warning the Canadian Government in newspaper articles, in letters to the press and in interviews to resist the temptation of tariff favors from Washington. There are those who maintain that it would be to the eventual advantage of the United States to give Canada its minimum tariff privileges unconditionally.

Reciprocity in Coal.

The provision in the Payne bill for reciprocity in bituminous coal is generally welcomed on this side of the border. Manufacturing interests, railroad interests and coal consuming interests are in favor of reciprocity, as they are convinced free soft coal would be a great economy. By the great coal producing interests of Vancouver Island, of the Crow's Nest Pass, of the Province of Alberta, the idea of reciprocity is not opposed, as there are no important sources of American coal supply close enough to come within the market sphere of these western Canada coal interests. The Nova Scotia coal interests alone are strenuous in their opposition to reciprocity. It was largely in anticipation of the coal item of the Payne bill that a movement was started by Nova Scotia coal producers a few weeks ago to have the coal duty raised. The duty on bituminous coal benefits nobody but the Nova Scotia operators of coal mines. It burdens everybody else. Moreover, it cannot be shown to be necessary for the working of the Nova Scotia mines. The placing of United States iron ore on the free list of the Payne bill also gives satisfaction in all circles here and enlists a powerful section of opinion on the side of general tariff reciprocity with the United States.

Canadian farmers are pleased with the modifications in favor of grain. Wheat from the West would be practically free, for the drawback privileges would leave only nominally dutiable Canadian wheat ground in American mills for export. The barley duty specified is also liberal toward Canada, cutting the rate to one-half. These and like features of the Payne bill tend to make Canadian farmers favorable to reciprocity. C. A. C. J.

The National Lead & Oil Company of Pennsylvania has removed its offices from the Second National Bank Building to the nineteenth floor of the Commonwealth Building, 316 Fourth avenue, Pittsburgh, Pa.

NEWS OF THE WORKS.

Iron and Steel.

The Kidd Brothers & Burgher Steel Wire Company, Aliquippa, Pa., manufacturer of drill rods and special shapes in high carbon and soft steel, reports a continued improvement in business and that its various departments are being operated to full capacity with good prospects for the future.

The Vulcan Crucible Steel Company, Aliquippa, Pa., manufacturer of tool steel, recently completed a new addition, 64 x 184 ft., to its crucible and open hearth buildings, and will shortly rearrange its hammer division and later on may possibly purchase some additional equipment.

Alfred Tompkins, constructing engineer, 718 House Building, Pittsburgh, has received a contract for the building of a foundation to accommodate a 40 x 72 in. mill engine, foundations for four new hot mills and for the building of sheet and bar heating furnaces in the plant of the Standard Tin Plate Company, Canonsburg, Pa.

The Reading Iron Company is reconstructing its Crumwold blast furnace plant at Emaus, Pa. A new furnace and a modern stock handling equipment will be built. Frank C. Roberts & Co., Philadelphia, are the engineers.

At a meeting of the creditors of the Birmingham Coal & Iron Company, Birmingham, Ala., March 22, A. W. Smith, W. P. Harding and James Bonnyman were elected trustees, and an order was issued by the court to continue the works of the company in operation.

General Machinery.

Wilkie Brothers, proprietors of the Greater Winona Machine Works, Winona, Minn., have installed new equipment for the purpose of building marine and gasoline engines.

The Hilles & Jones Company, Wilmington, Del., has purchased the drawings, patterns, &c., of the line of lever or scrap shears, formerly manufactured by the George A. Hogg Iron & Steel Foundry Company, Pittsburgh, Pa., and is now in a position to furnish repair parts for the shears or to supply new machines from the patterns.

The Franklin Machinery Company, Franklin, Pa., recently incorporated with a capital stock of $50,000, has succeeded to the business of J. P. Coffman, who will be general manager of the company as soon as the organization is completed. The company owns a recently completed shop, 64 ft. square, two stories high, of cement and steel construction, which has one end closed temporarily with the view of extending it when business shall warrant. Machine tools will be manufactured, a specialty being made of horizontal, boring, drilling and milling machines.

The Crocker-Wheeler Company, Ampere, N. J., has recently received a number of orders for motors, including: Pittsburgh Steel Company, Monessen, Pa., two 75-hp. motors; Newton Machine Tool Company, Philadelphia, Pa., 22-hp. motor; King Bridge Company, Cleveland, Ohio, nine crane motors.

Wickes Brothers, Saginaw, Mich., recently purchased through their Pittsburgh office the entire equipment of the machine shop, foundry and power house, which included a 20 and a 25 ton electric traveling crane, of the plant of the Vulcan Foundry & Machine Company, New Castle, Pa., which has been idle for a long time. The purchasers are removing the equipment as they find customers for it.

The Beebe Syndicate, 500 Onondago County Bank Building, Syracuse, N. Y., controlling eight electric railroads entering Syracuse, has engaged the engineering firm of Sheaff & Jaastad, Boston, Mass., to prepare plans and specifications for car barns for the Syracuse, Lake Shore & Northern lines and also for a machine and repair shop to be used by all of the Beebe lines. Plans and specifications will be completed and bids called for at a later date.

H. K. Spaulding, Owego, N. Y., is arranging to open a machine shop and garage building on Packer avenue.

The Wheeler Elevator Company, Buffalo, N. Y., Albert J. Wheeler, president, Western Savings Bank Building, will build a steel frame reinforced concrete bin elevator on the Buffalo River at Ganson street, 80 x 134 ft., 105 ft. high, with 33 bins 80 ft. high. It will have 700,000 bushels capacity and cost $200,000. Power, elevating and conveying machinery and electric motors will be required.

Foundries.

Plans for the enlargement of the plant of the Western Crucible Steel Casting Company, Minneapolis, Minn., are now being prepared. A new building will be constructed and the capacity of the plant considerably enlarged by substantial improvements which will be undertaken about June.

The United Iron Works Company, which operates seven different plants, has decided to add to its Iola, Mo., works a large brass foundry for the production of brass, aluminum and other castings of nonferrous metals.

Power Plant Equipment.

A new electric light plant is being constructed at Scott's Bluff, Neb., by Clarence J. Morley, Denver, Colo., under a 25-years franchise recently granted by that municipality. In addition to supplying current for lighting, power will be furnished from the station to operate the pumps of the municipal water plant.

The R. H. Alberger Company, Buffalo, N. Y., has recently received orders for two 150-hp. gas engines from the Empire Coke Company, Geneva, N. Y., and 100-hp. gas engine, Syracuse Milling Company.

To provide for the increased demand for power from the city of Bellingham, Wash., Stone & Webster, owners of the power plant at Nooksack Falls, are considering the installation of a 750-kw. low pressure Curtiss turbine. Definite plans respecting this equipment have not been made.

Robert Moran, Rosario, Wash., has in contemplation the construction of an electric light and power station and a water works system at Olga, Wash. A franchise for the installation has already been granted by the town.

The Village Council of Elkton, Mich., will receive bids until April 1 for the construction of a water works system, consisting of gasoline engine, water pump, tank, pipes, hydrants, &c.

The Trustees for Water Works and Improvements, Jacksonville, Fla., will receive bids until April 5 for two motor driven centrifugal pumps with a capacity of 2,000,000 gal. per min. against a pressure at the discharge of 170 lb. to the square inch, also alternative bids on two pumps of 2,500,000 gal. capacity each.

The City Secretary of Greenville, Texas, will receive bids until April 6 for one compound condensing pumping engine, one surface condenser and other appliances.

Consulting Engineer C. C. Peck, E. & B. Building, Rochester, N. Y., is preparing specifications and layout for the electric generating plant to be installed in the new factory building to be erected by W. N. Clark & Co., Norton and Hollenbeck streets, who are now ready to receive tenders on the following equipment: Two 125-hp. horizontal tubular boilers, one 50-kw. or 75-kw. generator direct connected to auto high speed engine, and one 15-ton steam engine driven ice machine.

The Bessemer Gas Engine Company, Grove City, Pa., has increased its capital stock from $200,000 to $400,000, the increase in capital to be used in making some extensive improvements and additions to its plant which are now well under way.

The Syracuse Lighting Company, 339 South Warren street, Syracuse, N. Y., has asked permission of the Public Service Commission to place a mortgage for $2,500,000, the proceeds of which are to be used in extending the power plant and transmission lines in Syracuse. Of this amount $207,000 is asked for immediate use. J. C. De Long is acting manager and in charge of any improvements to be made.

The City Council of Watertown, N. Y., has instructed City Engineer E. W. Sayles, City Hall Building, to prepare plans and specifications for the construction of a municipal lighting plant for the city, to include boilers, engines, generators and equipment complete, also power house building.

S. W. Carver, Neosho, Mo., has secured a franchise from the city of California, Mo., for the operation of an electric light plant. It is stated that the present plant has been purchased and will be remodeled. Included in the equipment required is one 100-kw. alternating current steam turbine unit.

Contracts have been let for an electric light plant and equipment to be installed at Claflin, Kan., by E. R. Ruck. A 22-hp. Weber gasoline engine and a Westinghouse direct current generator are included in the equipment. Further extensions are contemplated later on.

Bridges and Buildings.

In line with its policy of replacing wooden bridges with steel structures, the Chicago, Milwaukee & St. Paul Railroad has given an order to the Wisconsin Bridge & Iron Company for several hundred tons of steel girders.

The Morrison Construction & Salvage Company has been incorporated by G. S. Morrison, F. R. Morrison and C. C. Millan with a capital stock of $10,000, and has opened offices at 219 Exchange Place Building, Rochester, N. Y. The company will engage in a general contract business covering erecting and wrecking of bridge and structural steel for buildings. It has no intention of erecting a plant or engaging in the fabricating of steel, but is soliciting the patronage of larger steel firms who do their own fabricating and sublet the erecting. The company will maintain a yard which will be used principally for storage and is ready to entertain bids and will place orders within the next 30 days for the following equipment to be used in erecting work: One air compressor of portable type, capacity to operate six hammers, including six complete sets of tools, to have air cooling attachments and to be steam engine driven with boiler, engine and compressor equipped on skids; one 20-ton derrick equipment, and one 50-hp. double drum, double cylinder, portable steam engine driven hoist.

The Page-Hershey Company, Ltd., Welland, Ont., Canada, has awarded contract to the Berlin Construction Company, Berlin, Conn., including steel work and construction complete of a large manufacturing plant to be erected at Welland for the

manufacture of all sizes of water pipe and gas pipe. The plant will be operated by electricity throughout.

The Penn Bridge Company, Beaver Falls, Pa., has received an order for a steel addition to the Slaughter Building, Ft. Worth, Texas, requiring 250 tons of structural steel.

Fires.

The plant of the Empire Foundry Company, New Brunswick, N. J., was destroyed by fire March 20, the loss being about $60,000.

The main building of the Easton Foundry & Machine Company, Easton, Pa., was burned March 18. The loss is placed at $50,000.

The plant of the Catel Fan & Engineering Company, Monongahela, Pa., was burned March 19, with a loss of $40,000.

The brass foundry of William Keating at Toronto, Ont., was damaged $15,000 by fire March 14.

The plant of the Wright Wire Company at Worcester, Mass., was burned March 20 with a loss of $100,000, and on March 21 the rope department of the company's plant at Palmer, Mass., was burned with a loss of $40,000.

Hardware.

A new company known as the Kalamazoo Steel Goods Company, Kalamazoo, Mich., has been organized for the manufacture of steel office stools for store and factory use. The manufacturing plant occupies a part of the factory of the Newton Steel Wheel Company. The officers are W. S. Dewing, president and treasurer; W. H. Maxwell, secretary and manager.

The Carnahan Stamping & Enameling Company, Canton, Ohio, has let contract for the erection of a building, 175 x 272 ft., of brick, fireproof construction, with saw tooth roof. This building, which will be used as a warehouse and shipping room, is a unit of several other buildings contemplated in the near future.

D. L. Heilman and C. B. Lovelace have purchased from the receivers, W. Gordon Brown and Clay Hanna, the property of the Penn Shovel & Mfg. Company, Warren, Ohio, and will operate it in the future.

Miscellaneous.

The Darby-Meeker Company, 136 Liberty street, New York, has incorporated with a capital stock of $125,000, to manufacture electrical apparatus. Clifford D. Meeker is president, and John Darby, secretary and treasurer.

The Wireless Electric Appliance Company, Grand Rapids, Mich., has been organized with a capital stock of $500,000, to manufacture, under the patents of Philip Young, a generating battery and wireless electric lamps. It is said that one of these batteries weighing less than a pound has run a ½-hp. motor for about 200 hr. constantly. The company intends to erect a plant, but has not yet selected a site. Philip Young is president; Lester B. Markham, treasurer, and H. M. Dunham, secretary.

The Brighton Fire Brick Company, New Brighton, Pa., has received a contract from the Lackawanna Steel Company, Buffalo, N. Y., for the top linings for blast furnaces Nos. 3 and 7 and miscellaneous brick for gas flues, &c.

T. F. Manville, president of the H. W. Johns-Manville Company, New York, was in Lockport, N. Y., the past week and consummated a deal by which the United Indurated Fibre Company passes into the control of the H. W. Johns-Manville Company. Announcement regarding the future of the Lockport plant has not yet been made.

The Schenectady Linonite Company, Schenectady, N. Y., has been incorporated, with a capital stock of $80,000, and will engage in the manufacture of oilcloth and oil paper for use in insulating purposes in connection with the manufacture of electrical apparatus. The directors of the company are M. O. Caldwell, 113 Nott Terrace; Harvey Leamon, 242 Union street; Edwin Clute, care Edison Hotel, and others, all of Schenectady. Permanent officers of the company will be elected in April. Preparations for beginning manufacture at an early date are now under way.

The Rochester Perforating Company, Rochester, N. Y., has been organized by Frederick Erdle, William J. Erdle and Leo Leach to manufacture metal ware.

The Rutan Valve & Machine Company, Elmira, N. Y., has been incorporated by Archie N. Rutan, 365 West Gray street; J. W. Hawthorne, 306 South avenue; G. A. Gucker, 373 West Water street, and Herbert A. Dunn, all of Elmira. The company will erect a factory and engage in the manufacture of triple duplex valves, including parts and accessories for same.

The Ernst Wiener Company, New York, reports an improvement in the demand for its products, recent orders including one for the complete equipment of a narrow gauge railroad in Colombia, South America, consisting of over six miles of track, switches, a number of freight and passenger cars, and two locomotives.

The Martin Metal Mfg. Company, Wichita, Kan., manufacturer of metal ceiling, tanks, corrugated culverts, &c., has purchased a site upon which it will erect a building, 140 x 158 ft., two stories and basement. Contract for the construction of this building, which will about double the capacity of the plant, will be let within the next few weeks.

The Victor Talking Machine Company, Camden, N. J., is asking bids for the construction of a four-story addition to its plant, 133 x 139 ft., and a one-story building, 69 x 139 ft.

The Automatic Roller Bearing Company, Goshen, Ind., having sold 250 lots in its addition to the city, at $300 each, will begin the building of its factory at an early date.

The Vandalia Railroad will build an additional roundhouse at Terre Haute, Ind., to cost $100,000.

The Jamison Coal & Coke Company, Frick Building Annex, Pittsburgh, manufacturer and shipper of furnace and foundry coke, last week placed in operation six more of its new ovens at its works at Luxor, Westmoreland County, Pa.

The Watt Mining Car Wheel Company, Barnesville, Ohio, builder of wooden and steel cars for industrial and mining purposes, has recently completed a new brick addition to its plant, 120 x 250 ft., which will be used as an erecting shop, considerably increasing its capacity. The company also requires more office room, and a new addition is being built to its present offices. Its plant was never shut down during the business depression, and at present has orders on its books sufficient to run full for the next two months. These include an order for 200 three-ton steel mining cars having automatic couplers for the Federal Coal & Coke Company, Federal, W. Va.; 100 steel mine cars for the Crows Nest Pass Coal Company, Fornie, B. C., and others.

Articles for a $100,000 incorporation known as the Hudson Motor Car Company, Detroit, Mich., have been filed. Just what type of car will be manufactured is not announced. The company is now located in the plant formerly owned by the Northern Motor Company, at Champlain and Canton avenues.

A building known as No. 10 is being added to the plant of the Buick Motor Company, Flint, Mich., for the accommodation of assembling work. The three-story building, which will be constructed of white brick, is 70 ft. by 800 ft., and will be completed about July 1.

A new industry is about to be located at Groton, N. Y., for the manufacture of the Sperry Perfection expansion culverts, a cast iron culvert with perfect connections which will allow for expansion and contraction as action of frost demands. The company is controlled by the same parties controlling the Groton Bridge Company, which formerly built these culverts under contract and will now manufacture and control right of sale in all States except New York, which State will be retained by the patentee. The Groton Bridge Company will refit the foundry and machine shop at Main and Elm streets.

Pennsylvania Industrial Legislation.

HARRISBURG, PA., March 22, 1909.—The Pennsylvania Legislature will adjourn finally for the session of 1909 within three weeks, and unless the programme laid down some weeks ago is revised, very little legislation affecting iron and steel and kindred manufacturing companies will be enacted, except some changes in the child labor, mining, railroad and electric railroad laws.

Early in the session it was determined that there should be no laws enacted to increase the taxation of corporations, and the bills to place a tax on the stock of manufacturing companies, which is now exempt, will not be reported out of committee. The only bill designed to increase revenue from corporation sources which has any show of being passed is one amending existing laws so that treasurers of corporations shall report annually to the Auditor-General the names of holders of bonds of their companies residing within the State of Pennsylvania, so that bonds, which are classed as personal property and now escaping taxation, may be assessed against their holders.

The child labor bills have been amended and will be made special orders so that they can be passed. The provisions regarding the employment of minors will be changed, so that any person who has attained the age of 14 may be employed in vacation time regardless of educational qualifications, but no one under 16 will be allowed to work in school periods without a certificate. These certificates will be issued only by school authorities, the provision that magistrates may have authority to issue such papers having been dropped. No changes will be made regarding the prohibition of employment of minors under 18 about hazardous occupations.

A stiff fight is being made against the bill to give the State Railroad Commission authority to control increases of capitalization of railroads and trolley lines. This is advocated by the administration. If it goes through, a similar measure to control capital increases of all corporations can be looked for next season. H.

The Iron and Metal Trades

Production of Pig Iron in Excess of Requirements.

Low Prices on Structural Material.

Too much pig iron is being made and metal is accumulating in nearly all the principal producing districts. Prices are weak, but the market has not been seriously tested in any of the leading distributing centers. It is acknowledged that large Birmingham interests have endeavored to secure orders for good tonnages on the basis of $11 per ton for No. 2 foundry, but have not met with success. Eastern pig iron makers are conferring on means of reducing cost of production, there having been a gathering of Lehigh Valley and New Jersey makers in this city on Monday, and there being a meeting of the Eastern Pig Iron Association in Philadelphia to-day. Efforts are being made to secure a reduction of railroad freights on coke and ore, and to bring about a readjustment of wages.

The only business of consequence done lately has been in New England, where the makers of textile machinery, who are busy, have been the principal buyers. In that territory Buffalo is selling on the basis of $14.50 at furnace, while the lower prices made by Alabama makers give them an advantage at points close to Boston and Providence.

While it is not quite certain, as yet, it is probable that owing to lack of work the Ensley steel plant of the Tennessee Company will shut down early in April. The Ensley furnaces in that case will also blow out, since it is not the plan to turn them over to making merchant iron. Low prices continue to be made on structural material, and 1.06c. at an Eastern mill, is reported on a recent large contract. During the past week there were placed 11,000 tons for track elevation work for the Chicago & Northwestern at Chicago, and 12,000 tons for the Gimbel Building in this city. In addition to the different larger contracts referred to previously as pending, we may note that there are bids called for for 9000 tons for the Erie, between 33,000 and 34,000 tons for the New York Central and 11,000 to 12,000 tons for 206 bridges on the Florida East Coast line.

Although some low bids were put in by American makers on the contract for the structural material for the new plant of the Tata Iron & Steel Company, in India, the business was lost to a Glasgow shop, which went considerably lower.

The steel rail trade remains very quiet and there are intimations of a coming lowering in the price. Chicago mills booked during the last week a total of 19,500 tons, including 6000 tons for the Soo line, while Pittsburgh took 3000 tons for the Norfolk & Western Railroad.

The inquiry for 10,000 steel cars for the Baltimore & Ohio is again in the market, and it is believed that at least a part of it may be placed.

In the bar trade the chief item of interest is that the agricultural implement makers have begun negotiations for material for delivery over a whole year, but apparently their expectations of low prices are far beyond anything which the mills will be likely to meet. The same interests are also feeling the pig iron markets for large tonnages for delivery over a long period.

In the wire trade specifications are coming in well, but new orders are very light.

It is estimated that there have been sales during the past week of copper, both to exporters and for domestic consumption, aggregating 25,000,000 lb. Some of the earlier transactions were made at 12⅝c., while the later sales were made on the basis of 12½c. net cash for electrolytic.

There have been good sales of lead, and the market is firmer.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Mar.24, 1909.	Mar.17, 1909.	Feb.24, 1909.	Mar.25, 1908.
PIG IRON, Per Gross Ton:				
Foundry No. 2 standard, Philadelphia	*$16.25*	$16.25	$16.75	$17.75
Foundry No. 2, Southern, Cincinnati	*14.75*	14.75	15.75	15.25
Foundry No. 2 local, Chicago	16.50	16.50	16.50	17.85*
Basic, delivered Eastern Pa.	*15.50*	15.50	16.00	17.25
Basic, Valley furnace	*14.75*	15.00	15.00	15.50
Bessemer, Pittsburgh	*16.15*	16.40	16.40	17.75
Gray forge, Pittsburgh	*14.40*	14.40	14.90	15.90
Lake Superior charcoal, Chicago	19.50	19.50	19.50	20.50
BILLETS, &c., Per Gross Ton:				
Steel billets, Pittsburgh	*23.00*	23.00	....	28.00
Forging billets, Pittsburgh	*25.00*	25.00	....	30.00
Open hearth billets, Phila.	*25.40*	25.40	....	29.20
Wire rods, Pittsburgh	33.00	33.00	33.00	35.00
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel rails, melting, Chicago	*13.00*	13.00	14.50	12.00
Steel rails, melting, Phila.	*13.50*	13.50	....	12.75
Iron rails, Chicago	*16.00*	17.25	18.25	15.00
Iron rails, Philadelphia	*17.00*	17.00	....	17.00
Car wheels, Chicago	*14.50*	14.75	15.25	15.50
Car wheels, Philadelphia	*14.00*	14.00	....	14.00
Heavy steel scrap, Pittsburgh	*14.00*	14.00	15.50	13.00
Heavy steel scrap, Chicago	*12.00*	12.00	13.50	11.25
Heavy steel scrap, Philadelphia	*13.50*	13.50	....	12.75
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	*1.37*	1.37	1.45	1.65
Common iron bars, Chicago	*1.32½*	1.40	1.40	1.65
Common iron bars, Pittsburgh	*1.35*	1.40	...	1.50
Steel bars, tidewater, New York	1.36	1.36	1.36	1.76
Steel bars, Pittsburgh	1.20	1.20	1.20	1.60
Tank plates, tidewater, New York	1.46	1.46	1.46	1.86
Tank plates, Pittsburgh	1.30	1.30	1.30	1.70
Beams, tidewater, New York	1.46	1.46	1.46	1.86
Beams, Pittsburgh	1.30	1.30	1.30	1.70
Angles, tidewater, New York	1.46	1.46	1.46	1.86
Angles, Pittsburgh	1.30	1.30	1.30	1.70
Skelp, grooved steel, Pittsburgh	*1.25*	1.25	...	1.70
Skelp, sheared steel, Pittsburgh	*1.35*	1.35	...	1.80
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, black, No. 28, Pittsburgh	*2.20*	2.20	...	2.50
Wire nails, Pittsburgh	1.95	1.95	1.95	2.05
Cut nails, Pittsburgh	1.80	1.80	1.80	1.90
Barb wire, galv., Pittsburgh	2.40	2.40	2.40	2.50
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	13.00	12.75	13.00	13.25
Electrolytic copper, New York	*12.50*	12.25	12.75	13.25
Spelter, New York	*4.80*	4.80	4.90	4.75
Spelter, St. Louis	*4.65*	4.65	4.80	4.55
Lead, New York	4.05	4.02½	4.00	4.00
Lead, St. Louis	3.90	3.87½	3.90	3.85
Tin, New York	*28.50*	28.50	28.62½	32.25
Antimony, Hallett, New York	7.75	7.75	7.75	9.50
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	*$3.64*	$3.64	$3.89	$3.89

* This quotation has been changed for uniformity from price at furnace to delivered price at foundries, adding 35c. for switching charges.

Prices of Finished Iron and Steel F.O.B. Pittsburgh.

Freight rate from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural steel and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Shapes.—I-beams and channels, 3 to 15 in., inclusive, 1.30c., net; I-beams over 15 in., 1.40c., net; H-beams over 8 in., 1.50c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.30c., net; angles, over 6 in., 1.40c., net; angles, 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, steel bar card; tees, 3 in. and up, 1.30c., net; zees, 3 in. and up, 1.30c., net; angles, channels and tees, under 3 in., 1.20c., base, half extras, steel bar card; deck beams and bulb angles, 1.60c., net; hand rail tees, 2.70c., net; checkered and corrugated plates, 2.70c., net.

Plates.—Tank plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.30c., base. Extras over this price are as follows:

Tank, ship and bridge quality, ¼-in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered ¼-in. plate. Steel plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3-16-in. plates on thin edges	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
All sketches (excepting straight taper plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete circles	.20
Boiler and flange steel plates	.10
"A. B. M. A." and ordinary firebox steel plates	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Shell grade of steel is abandoned.	
For widths over 100 in. up to 110 in.	.05
For widths over 110 in. up to 115 in.	.10
For widths over 115 in. up to 120 in.	.15
For widths over 120 in. up to 125 in.	.25
For widths over 125 in. up to 130 in.	.50
For widths over 130 in.	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.30c., f.o.b. Pittsburgh.

Sheets.—Minimum prices for mill shipments on sheets in carloads and larger lots, on which jobbers charge the usual advances for small lots from store, are as follows: Blue annealed sheets, No. 10 and heavier, 1.65c.; Nos. 11 and 12, 1.70c.; Nos. 13 and 14, 1.75c.; Nos. 15 and 16, 2.05c. Box annealed sheets, Nos. 17 to 21, 2c.; Nos. 22 to 24, 2.05c.; Nos. 25 and 26, 2.10c.; No. 27, 2.15c.; No. 28, 2.20c.; No. 29, 2.25c.; No. 30, 2.35c. Galvanized sheets, Nos. 13 and 14, 2.30c.; Nos. 15 and 16, 2.40c.; Nos. 17 to 21, 2.50c.; Nos. 22 to 24, 2.65c.; Nos. 25 and 26, 2.85c.; No. 27, 3.05c.; No. 28, 3.25c.; No. 29, 3.35c.; No. 30, 3.60c. Painted roofing sheets, No. 28, 1.55c. per square. Galvanized roofing sheets, No. 28, 2.80c. per square for 2½-in. corrugations.

Wrought Pipe.—Discounts on steel pipe, ¾ to 6 in., in carloads to the general trade, are 80 and 5 per cent. off list, and on iron pipe, ¾ to 6 in., are 77 per cent. off list, while to the largest jobbers one point on the base and 5 per cent. differential additional are allowed. Regular discounts to jobbers in carloads, to which 1 per cent. on the base and 5 per cent. differential are allowed to the large trade, are as follows:

	Steel merchant pipe. Black.	Steel merchant pipe. Galv.	Genuine iron pipe. Black.	Genuine iron pipe. Galv.
	%	%	%	%
⅛ to ¼ in.	72	58	69	53
⅜ in.	73	59	70	56
½ in.	76	64	73	61
¾ to 6 in.	80	70	77	67
7 to 12 in.*	75	60	72	57
Extra strong, plain ends:				
⅛ to ⅜ in.	65	53	62	50
½ to 4 in.	72	60	69	57
4½ to 8 in.	68	56	65	53
Double extra strong, plain ends:				
½ to 8 in.	61	50	58	47

* Iron prices are for 7 to 8 in.

Boiler Tubes.—Regular discounts are as follows:

Boiler Tubes.

	Steel.
1 to 1¼ in.	50
1¾ to 2¼ in.	62
2½ to 5 in.	70
2½ in.	64
6 to 13 in.	62

2½ in. and smaller, over 18 ft. long, 10 per cent. net extra.
2¾ in. and larger, over 22 ft. long, 10 per cent. net extra.

Wire Rods.—Bessemer rods, $33; chain rods, $33; basic rods, $34.

Chicago.

FISHER BUILDING, March 24, 1909.—(*By Telegraph.*)

The consensus of opinion among the leading local iron and steel interests seems to be that the early settlement of the tariff question is of greater importance to this branch of trade at least than any other feature connected with the proposed revision. If offered the choice of accepting the reductions provided in the House bill as drafted and thus settling the matter at once, or of securing a modification of the contemplated cut in duties after prolonged delay, the probabilities are that the former alternative would be generally favored. While there are differences of opinion as to the ultimate effects of lower duties, there are none as to the retarding influences of the uncertainty that clouds the situation pending the final outcome of the work now engaging the attention of Congress. As an instance in point, it is said that, notwithstanding the firmness of rails, some roads are withholding orders that might now come into the market but for the feeling that prices may be affected by the new tariff. That the railroads have pressing need of rails which cannot be much longer deferred is apparent from the new orders for small lots coming out; the aggregate of such orders booked last week by the local mills amounted to 19,500 tons. The new prices on plates, shapes and bars are being fairly well maintained, but the tendency is toward a Chicago basing price slightly under that of Pittsburgh with full freight added. This is especially true of steel bars, which have settled down to 1.35c., Chicago, as against 1.20c., Pittsburgh, plus 18c. per 100 lb. freight. Indications are not lacking of a similar trend in structural shapes and plates.

Rails and Track Supplies.—The continued buying of rails in moderate lots by Western roads is providing tonnage sufficient to assure the steady operation of the rail mill at the South Works for some months. Last week's orders included 6000 tons from the Soo Line, 5000 tons from Northern trunk lines and 1000 tons from a small Western road, all calling for Bessemer rails. In addition to these, one order for 7500 tons of open hearth rails was taken to be rolled by the Gary mill for an Eastern road. Specifications on old contracts are now pretty well cleaned up, but included in those received last week by the Illinois Steel Company was a specification for 18,000 tons from a Northern road. New business amounting to between 16,000 and 18,000 tons is now pending, and it is creditably reported that some of the trunk lines have urgent needs that will of necessity bring them into the market before long. There is a fair demand for track supplies, with a good run of specifications against the orders already booked. Light rails are quiet and prices are being shaded $1 or more from the regular quotation of $24 for 25 lb. to 45 lb. sections.

Structural Material.—The principal fabricating contract closed last week was for 11,000 tons placed by the Chicago & Northwestern for track elevation work, which was divided between two interests, 9000 tons being taken by the American Bridge Company and the remainder by the Modern Steel Structural Commpany. Other business included 250 tons for the Flour Exchange Building, Minneapolis, taken by the Minneapolis Steel & Machinery Company; 400 tons for car barns placed by the Chicago Railways Company with the South Halsted Street Iron Works; 230 tons to be fabricated by the Clinton Bridge & Iron Works, for a California highway bridge, and 2278 tons for the Slaughter Building, Dallas, Texas, which was secured by the Pennsylvania Bridge Company. Some low fabricating prices have been developed by competition, and, as a result, there is less hesitancy on the part of builders in placing contracts. There is considerable tonnage in sight for building projects, but comparatively little railroad material is being figured on.

Plates.—Orders are coming out more freely, and bookings of the Illinois Steel Company show a gratifying increase since the new prices went into effect. A large part of the business is being supplied by structural requirements of various kinds, although some fair sized orders have recently been placed by the car shops. Both the universal and sheared mills at the South Works are going at a good rate, with prospects of a steady run for some weeks. The price of 1.30c., Pittsburgh, is the accepted standard in this market, but is subject to a slight shade under stress of competition.

(*By Mail.*)

Pig Iron.—The prevailing dullness in pig iron is, if anything, even more pronounced, although it must be admitted that there is scant room for distinction between the movement of the past few weeks and an absolute halt. The only transactions of any consequence reported were sales aggregating 1000 tons, made by a Southern producer, at prices ranging from $11.50 to $12, Birmingham, for No. 2 foundry, divided up into small lots, all for delivery through the second quarter. A few inquiries for the second half have been received, but the furnaces are not disposed to make prices so far ahead that buyers will consider. There is no noticeable change in the price situation as respects either Northern or Southern iron, and the outlook for material improvement in the immediate future is not promising. At the present rate of consumption it is believed that the majority of melters have iron enough in stock and due on contracts to carry them through to July. The following quotations are for March delivery, f.o.b. Chicago:

Lake Superior charcoal	$19.50 to $20.00
Northern coke foundry, No. 1	17.00 to 17.50
Northern coke foundry, No. 2	16.50 to 17.00
Northern coke foundry, No. 3	16.00 to 16.50
Northern Scotch, No. 1	17.50 to 18.00
Southern coke, No. 1	16.85 to 16.85
Southern coke, No. 2	15.85 to 16.35
Southern coke, No. 3	15.35 to 15.85
Southern coke, No. 4	14.85 to 15.35
Southern coke, No. 1 soft	16.35 to 16.85
Southern coke, No. 2 soft	15.85 to 16.35
Southern gray forge	14.35 to 14.85
Southern mottled	14.10 to 14.60
Malleable Bessemer	16.50 to 17.00
Standard Bessemer	17.90 to 18.40
Jackson Co. and Kentucky silvery, 6 %	19.90 to 20.40
Jackson Co. and Kentucky silvery, 8 %	20.90 to 21.40
Jackson Co. and Kentucky silvery, 10 %	22.90 to 23.40

Billets and Rods.—Very little business is coming out, a few small orders for forging billets comprising practically all the transactions reported for last week. One carload of forging billets was secured by an Eastern mill at $28, Chicago; but on strictly competitive business of any considerable size it is not likely that the full freight differential would

be observed. Because of the lack of such business, however, the actual price has not been distinctly developed in this market. The leading producer of wire rods is not pressing for orders, and not much new business is being entered. Prices are unchanged and are in the main being evenly held.

Sheets.—The demand continues to show a moderate degree of improvement. Jobbers' orders are noticeably more liberal, especially from Western territory. One order for 250 tons, recently placed by a trans-Missouri River jobber with a local interest, was doubled within a few days on account of increased demand. In the distribution of business it is apparent that the smaller mills are less favored than the more prominent makers. The Atlanta Tin Plate and Sheet Mill, which has been shut down for about 10 days, is expected to resume operations within a week or two. Prices are reported to be fairly steady at the new schedule of quotations under "f.o.b. Pittsburgh," prices.

Bars.—Specifications for steel bars show considerable improvement. New business also is being offered less grudgingly as the new prices become more firmly established. There is a notably better demand for concrete reinforcing bars, resulting from growing activity in structural work. The mills are not, as yet, contracting beyond July 1, but the number of inquiries coming in from consumers for prices on future requirements indicate a growing disposition to open negotiations for the coming season's requirements. The prospects are that the mills will begin the entry of such orders considerably earlier than usual, but the prices that will govern these transactions has not yet been developed. Trade in iron bars continues quiet, the demand being limited to current needs. The iron bar mills in this district are operating at about the same rate as for several months. The ruling price on steel bars is 1.35c., Chicago, and ranges from 1.32½c. to 1.40c. on iron bars.

Merchant Pipe.—While business in the aggregate is gradually increasing, the rate of improvement is far from satisfactory. The season is now far enough advanced to warrant the expectation of heavier consumption, which would naturally be reflected in more liberal orders from jobbers. Notwithstanding the cut in prices the movement is still disappointingly slow, although some encouragement is offered in a better run of inquiries, which it is hoped are the forerunners of a better demand.

Boiler Tubes.—The recent reduction in prices has thus far failed to stimulate buying of either merchant or locomotive tubes, for both of which the demand is very light. The railroads are buying only such lots as are required for current repair work, and the boiler shops are likewise purchasing sparingly.

Merchant Steel.—The volume of new business in shafting has not been materially increased by the late reduction in prices, amounting to three points from former discounts. Through a typographical error the new discounts were misquoted in last report and are here corrected to read as follows: 60 per cent. off in car lots and 55 per cent. off in less than car lots, delivered in base territory. Specifications for merchant steel dropped off somewhat last week. A large part of the tonnage on existing contracts has been specified by implement makers, and until buying for the new season begins there is not likely to be much activity in these lines.

Cast Iron Pipe.—Bids will be opened by the city of Toledo, March 25, for 600 tons and a letting of 100 tons of 8 and 10 in. pipe is advertised by Richland, Wis., for April 9. Among the contracts secured by founders last week were 1500 tons of 4, 6 and 12 in. pipe, taken by the Lynchburg Foundry Company, and 300 tons placed by Bay City, Mich., the latter being taken at a price close to $24, delivered. Several small municipal jobs in the Southwest are also in sight. Owing to the decline in pig iron, pipe prices are weaker, and quotations are reduced 50c. a ton. We quote per net ton, Chicago, as follows: Water pipe, 4 in. in diameter, $27.50; 6 to 12 in., $26.50; 16 in. and up, $24.50, with $1 extra for gas pipe.

Metals.—Sympathetically affected by the slump in iron and steel values and unsupported by an adequate demand, the copper market is weak and lower. As is usually the case, buyers hesitate to come in on a declining market. Consumers are limiting their purchases to the actual requirements of present consumption, manifesting no eagerness to stock ahead at the admittedly low level of prices now ruling. There is a little firmer tendency in lead and a slightly better movement in old metals. Quotations are as follows: Casting copper, 12¾c. to 13c.; lake, 13¼c. to 13½c., in car lots, for prompt shipment; small lots, ¼c. to ⅝c. higher; pig tin, car lots, 30½c.; small lots, 32½c.; lead, desilverized, 3.95c. to 4.05c., for 50-ton lots; corroding, 4.20c. to 4.30c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; spelter, 5c. to 5.10c.; Cookson's antimony, 10½c., and other grades, 9¾c. to 10¼c.; sheet zinc is $7, f.o.b. La Salle, in car lots of 600-lb. casks. On old metals we quote: Copper wire, crucible shapes, 13c.; copper bottoms, 11¼c.; copper clips, 11c.; red brass, 11¼c.; yellow brass, 9c.; light brass, 7c.; lead pipe, 3.75c.; zinc, 2½c.; pewter, No. 1, 21c.; tin foil, 23c.; block tin pipe, 26c.

Old Material.—Outside of a few transactions in old iron rails and rerolling steel rails, the market is practically lifeless. Dealers are at sea regarding prices. This is evidenced by the fact that while a lot of 250 tons of iron rails was sold at a basis of $16, Chicago, another sale is reported at considerably under this figure. A small tonnage of rerolling steel rails was taken by a mill interest at $13.50. Inquiries for cast scrap are more numerous, but few of them have resulted in orders. The rolling mills are well supplied and are out of the market except for such small lots as are offered at bargain prices. A list of 3000 tons is offered for disposal this week by the Chicago, Burlington & Quincy Railroad. The following prices are per gross ton, f.o.b. Chicago:

Old iron rails	$16.00 to $16.50
Old steel rails, rerolling	13.00 to 13.50
Old steel rails, less than 3 ft	13.00 to 13.50
Relaying rails, standard sections, subject to inspection	22.50 to 23.50
Old car wheels	14.50 to 15.00
Heavy melting steel scrap	12.00 to 12.50
Frogs, switches and guards, cut apart	12.50 to 13.00
Mixed steel	10.75 to 12.25

The following quotations are per net ton:

Iron fish plates	$14.00 to $14.50
Iron car axles	17.50 to 18.00
Steel car axles	16.00 to 16.50
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	10.50 to 11.00
Springs, knuckles and couplers	11.50 to 12.00
Locomotive tires, smooth	13.00 to 13.50
No. 1 dealers' forge	9.00 to 9.50
Mixed busheling	7.00 to 7.50
Iron axle turnings	7.00 to 7.50
Soft steel axle turnings	6.50 to 7.00
Machine shop turnings	6.50 to 7.00
Cast borings	5.25 to 5.50
Mixed borings, &c	5.25 to 5.50
No. 1 mill	7.00 to 7.50
No. 2 mill	6.00 to 6.50
No. 1 boilers, cut to sheets and rings	8.00 to 8.50
No. 1 cast scrap	12.25 to 12.75
Stove plate and light cast scrap	11.25 to 11.75
Railroad malleable	11.00 to 11.50
Agricultural malleable	9.75 to 10.25
Pipes and flues	8.50 to 9.00

Pittsburgh.

PARK BUILDING, March 24, 1909.—(*By Telegraph.*)

Pig Iron.—The market is still without any activity worthy of note, only occasional small sales being made to cover current needs. Trade among the foundries is very quiet, and they are using only a limited quantity of iron. It is stated that Bessemer and basic iron are being offered for second and third quarter delivery at practically the same prices that are now being quoted for April and May iron. Prices are weak. We quote Bessemer at $15.25, basic at $14.75, malleable Bessemer at $14.25, No. 2 foundry at $14 to $14.25 and gray forge at $13.50, all at Valley furnace, the freight rate to Pittsburgh being 90c. a ton.

Steel.—It is stated that some weakness has developed in the last few days in prices of sheet and tin bars. The new demand for billets and bars is very light, with not enough new business being offered to test prices. We quote billets at $23, and sheet and tin bars at $25, Pittsburgh.

(*By Mail.*)

There is plenty of evidence that the volume of trade in iron and steel products is increasing; this is particularly noticeable in structural steel, plates, sheets, tin plate and wrought pipe. Wire products are now in season, and manufacturers report a steadily increasing demand. The general feeling in the trade is more optimistic, and but for the pending tariff revision it is believed the steel business in the next couple of months would be traveling fast toward its normal condition. While not much is expected this year from the railroads as to orders for rails and cars, it is evident that the low prices ruling on all lines of rolled products are going to bring out a good deal of tonnage. Most of the leading mills are running to better capacity, and have more orders on their books than at any time in the last year and a half. The pig iron market continues quiet and prices are weak. It is evident that more pig iron is being made than consumed, and stocks at Valley furnaces are heavy. It is stated that some furnace interests are offering pig iron at prices that mean they are discounting a reduction in ore prices this year. Whether this will be made or not remains to be seen, but it is the impression that ore will have to follow suit with other products, and that a reduction in price is inevitable. The scrap and coke trades continue quiet with prices weak.

Ferromanganese.—The demand is light and prices seem to be weaker. We quote 80 per cent. foreign ferro at $41

to $41.50, seaboard, the freight rate to Pittsburgh being $1.95 a ton.

Ferrosilicon.—Prices are weaker and we quote 50 per cent. nominally at $61, Pittsburgh. On several large lots sold recently and for extended delivery, relatively low prices were made.

Muck Bar.—We do not hear of any new demand. We quote best grades made from all pig iron at $26, Pittsburgh, and it is probable this price would be shaded on a firm offer and for any large tonnage.

Wire Rods.—There is little new inquiry, but specifications against contracts are coming in at a fairly satisfactory rate.

Steel Rails.—The Carnegie Steel Company has taken a contract from the Norfolk & Western for 3000 tons of steel rails, half for early delivery and half for shipment later in the year. Good sales of both standard sections and light rails are being made for export, and it is reported that a good deal of tonnage is pending, but this is not officially confirmed. The Carnegie Steel Company received orders in the past week for about 2000 tons of light rails and has more pending. Standard rails remain at $28, but prices on light rails are rather difficult to quote, as they fluctuate very freely. We quote 25 to 45 lb. new light rails at $23, and 16 to 20 lb. at $24, makers' mill. On rerolled light rails these prices are being shaded from $1 to $2 a ton. The Maryland Rail Company, Cumberland, Md., which formerly sold a good many light rails in this district, has gone into the hands of receivers.

Skelp.—While new inquiry is light, specifications against contracts, particularly for iron skelp, are coming in quite freely. We quote grooved steel skelp at 1.25c. to 1.30c.; sheared, 1.35c. to 1.40c.; grooved iron, 1.50c. to 1.55c., and sheared iron, 1.60c. to 1.65c., all f.o.b. Pittsburgh.

Plates.—The Wabash-Pittsburgh Terminal Company has placed an order with the Standard Steel Car Company for 500 all-steel hopper cars, and the plates and other shapes, about 6000 tons, will be furnished by the Carnegie Steel Company. It is said this road will be in the market for more cars in the near future. The inquiry of the Baltimore & Ohio road for 10,000 steel cars, which was up some time ago, has again come on the market, and it is believed that at least a part will be bought in the very near future. The general demand for plates is showing some betterment and the mills are turning out a larger product than at any time for the past year or more. It is said that the price of 1.30c. on plates ¼-in. and heavier, is being well maintained, and has been shaded only in a few exceptional cases.

Structural Material.—Bids go in this week on the new building for the Pittsburgh Athletic Association, about 1500 tons. The material for another building for the University of Pittsburgh, about 600 tons, will be furnished by the Jones & Laughlin Steel Company. The McClintic-Marshall Construction Company has taken some trestle work for the Republic Iron & Steel Company at Youngstown, about 300 tons. The New York Central is reported to be in the market for 30,000 tons of structural steel for its Western lines, including the Lake Shore, Nickel Plate and the Pittsburgh & Lake Erie, and this business is expected to develop in the near future. Prices on structural material seem to be hardening to the basis of 1.30c., Pittsburgh. On some large jobs recently placed this price was heavily cut.

Sheets.—The new demand is considerably better, and jobbers and consumers are placing orders more freely than at any time in the past year. The American Sheet & Tin Plate Company is starting up this week its Scottdale Works, containing nine hot mills, and the company now has 108 hot sheet mills in operation, or 58 per cent. of its capacity. While competition among the mills is quite keen, prices in the main are being pretty well held. In fact, there is not much room to cut prices on sheets when the present price of sheet bars is taken into consideration.

Tin Plate.—On Monday the American Sheet & Tin Plate Company started up its New Castle Works, containing 20 hot mills, and this week is starting up its La Belle Works at Wheeling, containing 10 hot mills. This will give the company a total of 192 hot tin mills in operation, or 79 per cent. of its capacity. A fair amount of new business is being placed, and specifications against contracts taken two or three months ago are coming in quite freely. It is stated that the regular price of $3.40 on 100-lb. cokes, f.o.b. Pittsburgh, is being quite well maintained.

Bars.—New orders for steel bars are fairly heavy, and specifications against contracts are coming in well, so that the steel bar mills are running to larger capacity and making heavier shipments than at any time in the last year or more. There is a fair demand for iron bars, but specifications against contracts are not satisfactory. We quote steel bars at 1.20c., base, Pittsburgh, and iron bars at 1.35c. to 1.40c., but these prices are probably being shaded by some mills on desirable orders.

Hoops and Bands.—Buyers are giving small orders only, not being confident that present prices will be maintained. Regular prices in effect, which we are advised are being held, are 1.60c., base, for steel hoops, and 1.20c., base, for steel bands, one-half steel card extras, all f.o.b. Pittsburgh.

Railroad Spikes.—The demand is light and only for small lots. We quote railroad spikes at $1.70 for 5½ x 9-16 in., and $1.80, base, for the smaller sizes, in carload lots. 5c. per keg additional being charged for small lots.

Pipes and Tubes.—The merchant pipe demand is showing considerable betterment, several mills reporting that actual orders placed so far this month are nearly double what they were in the same period in any month in the past year. The National Tube Company has taken an order from the Philadelphia Company for 30 miles of 16-in. pipe, and the Kansas Natural Gas Company is expected to place an order in the next few days for 60 miles of 16-in. Some other large oil and gas line projects are on the market, but may not develop into actual inquiries for some time yet. Regular discounts on both iron and steel pipe are being absolutely maintained.

Boiler Tubes.—We are advised that the demand from the railroads for charcoal iron tubes is showing betterment, and some fair sized orders have been placed. The demand for merchant tubes is mostly in small lots for actual needs.

Iron and Steel Scrap.—Little is doing in the scrap trade by consumers. It is realized that present prices are low, but at the same time there is a feeling that they may go still lower. The Baltimore & Ohio list, bids for which were opened last week, was practically withdrawn, the road declining to accept the offers of dealers. It is stated that one or two large consumers of scrap have very little stock on hand, and as their products are now in season, and meeting with a good demand, it is believed they will soon be in the market as heavy buyers to cover their needs. The consumption is only fairly heavy, a good many users being able to operate their plants only spasmodically, owing to the light demand for their products. Dealers quote about as follows, per gross ton, f.o.b. Pittsburgh: Heavy steel scrap, $14 to $14.50; cast iron borings, $7.25 to $7.50; bundled sheet scrap, $11 to $11.25; No. 1 cast scrap, $13.25 to $13.50; No. 2, $12.25 to $12.50; No. 1 railroad wrought scrap, $13.75 to $14; sheet bar crop ends, $15 to $15.25; low phosphorus melting stock, $16.50 to $16.75; rerolling rails, delivered Cambridge, Ohio, $14 to $14.25; steel axles, $16; grate bars, $10.25 to $10.50; old car wheels, $14 to $14.25; machine shop turnings, $10.50 to $10.75; railroad malleable scrap, $12.75 to $13; locomotive tires, $15.50 to $15.75; iron rails, $16 to $16.25; old car wheels, $15. There have been sales during the week of 1000 to 1500 tons of heavy steel scrap at $14.25 to $14.50, and about 700 tons of old car wheels at a price equal to about $15, Pittsburgh.

Coke.—The item of interest in the coke trade is the effort being made by certain interests to form a consolidation of what are known as the outside coke operators that do not have furnace connections but sell their entire product of coke in the open market. This proposed consolidation is being actively handled by John W. Boileau, Park Building, Pittsburgh, who is asking options on close to 50 independent coke plants, to be given prior to October 1. Who the financial parties are that are said to be backing Mr. Boileau has not been made public, and in certain quarters the impression is strong that nothing will come of this proposed consolidation, owing to there being so many conflicting interests. Some inquiries are in the market for furnace coke for last half of the year, one leading interest quoting $1.80 to $1.85 per net ton, at oven, for standard grades of furnace coke, while other operators are quoting $1.75 or lower. Indications are that prices of both furnace and foundry coke will rule relatively low during the entire year. Standard grades of furnace coke for prompt shipment are held at $1.60 to $1.65 and 72-hr. foundry at $1.90 to $2. The output of coke last week in the Upper and Lower Connellsville regions was 252,167 tons, a decrease over the previous week of 8300 tons.

Philadelphia.

PHILADELPHIA, PA., March 23, 1909.

The crude material market is stagnant. In some lines of rolled products, particularly structural material and steel plates, a moderate run of small orders is reported. No business has come out which would indicate that any permanent improvement in the trade is in sight. The new tariff bill has not cleared the situation. Opinions differ materially as to the wisdom of the proposed reductions in the duty, the majority of producers terming them too drastic; others being at least favorably inclined to some of its provisions, while others refuse to express an opinion until the matter has been more fully investigated. A vigorous protest against what are considered radical reductions will be made. The whole trade will await the final passage of the bill, after which adjustments will be made to meet the new conditions. In the meantime business will no doubt continue along conservative lines.

Pig Iron.—Sales have hardly been sufficient to establish a market. In some grades there have been no transactions whatever, and in others the quantities taken have been confined to small spot lots, bought to piece out requirements. Melters still take little interest in the market, although some of the cast iron pipe makers have been feeling around to get an idea as to how low producers are willing to go to get business, but sellers have not yet come down low enough to induce buying. There has been some further holding up of deliveries on contract iron by the steel mills, and several producers of pig iron are now beginning to accumulate stock, and some makers contend that unless there is an early improvement they will curtail production. The proposed reduction of $1.50 per ton in the present duty on pig iron will, it is claimed by many furnacemen in this territory, practically shut them out of the New England market, unless the cost of ore and fuel and freight rates are reduced. Free ore would, no doubt, aid to some extent, but not sufficient to meet foreign competition on the Atlantic seaboard. Sales of pig iron have been confined almost entirely to the foundry grades. For fairly prompt shipment standard No. 2 X foundry commands $16.25 to $16.50, delivered, although for fair sized lots several sellers express a willingness to shade these prices 25c. a ton. Virginia foundry irons are still inactive, the range of prices for delivery in this territory being slightly above the level for Northern brands of the same grade. One transaction of 1000 tons of Virginia iron for a local pipe making concern is reported, while some further sales have been made in New England. Southern No. 2 foundry has been offered on a $11.50, Birmingham, basis, but no business has resulted. A little more interest has been shown in forge iron, one inquiry for 1000 tons and several for smaller quantities being reported, but buyers do not appear to place orders. Prices for this grade are on a fairly even basis. There has been absolutely no demand for steel making irons; the consumption of basic by the Eastern steel mills has not been up to expectations, and several mills are suspending shipments. In the absence of buying the prices which sellers would take for basic iron show a gradual recession, and the top price at this time is believed to be about $15.50, delivered. Low phosphorus iron is uncalled for and prices show weakness. In the absence of business of consequence it is difficult to make accurate quotations. For small lots the following prices are named for early delivery in buyers' yards, eastern Pennsylvania and nearby territory:

Eastern Pennsylvania, No. 2 X foundry	$16.25 to $16.50
Eastern Pennsylvania, No. 2 plain	15.75 to 16.00
Virginia, No. 2 X foundry	16.75 to 17.00
Virginia, No. 2 plain	16.25 to 16.75
Gray forge	15.25 to 15.50
Basic	15.50
Low phosphorus	21.00

Ferromanganese.—Business is at a standstill. Quotations are nominally $42, Baltimore, but would be shaded if anything desirable was inquired for.

Billets.—Some little inquiry has developed, probably with a view of testing the market, but unless buyers are satisfied that the steel is actually wanted, they refuse to quote under the nominal price of $25.40, delivered, in this territory for rolling billets, at which figure small spot business is transacted. The usual advance of $2 a ton is named for forging billets, the customary extras applying.

Plates.—Mills in this district continue to book a moderate amount of business, made up largely of miscellaneous lots. No heavy tonnages have come out, while the several large lots under consideration during the past few weeks are still pending. Plate makers in this section consider the proposed reduction in the duty on plates as entirely too radical, being equivalent to a cut of 63 1-3 per cent., and they contend that such a reduction would cut off entirely their Pacific Coast trade. Prices for current business appear to be pretty well established at 1.45c. to 1.55c., according to quantity, delivered in this territory, the usual extras applying.

Structural Material.—While a fairly good quantity of business has been done, individual orders have not been very heavy. Several large propositions are being figured on, but have not yet been closed. Proposals for the new Curtis Building, requiring some 14,000 tons, will be opened on the 25th inst., and some good tonnages of structural for elevated railroad work are expected to be placed in the near future. Prices of plain material are unchanged, ranging from 1.45c. to 1.55c. for delivery in this territory according to specification.

Sheets.—Business has quieted down somewhat, and mills are not so active. Consumers still purchase in small quantities for immediate needs, neither buyer nor seller showing any disposition to place or take tonnage for extended shipment. For moderate prompt lots, delivered in this territory, the following range of prices is named: Nos. 18 to 20, 2.40c.; Nos. 22 to 24, 2.50c.; Nos. 25 and 26, 2.60c.; No. 27, 2.70c.; No. 28, 2.80c.

Bars.—More inquiry for moderate lots from stores is reported, but little actual business has been placed. Wage adjustments are still going on and some mills are waiting developments before taking any decided action. At some works the puddlers have refused to accept the reductions proposed and buyers are waiting for matters to settle down before entering the market. Meanwhile prices are somewhat irregular. Refined iron bars are quoted from 1.37c. to 1.47c., the lower quotation applying to mills making a limited run of sizes; common iron bars, 1.28c. to 1.35c. and steel bars, 1.35c., delivered in this territory.

Coke.—Transactions have been confined almost entirely to small lots for prompt delivery. Prices are easier, and for spot shipment some brands are offered under market quotations, which for delivery in this territory range about as follows:

Connellsville furnace coke	$3.75 to $3.90
Foundry coke	4.15 to 4.40
Mountain furnace coke	3.35 to 3.50
Foundry coke	3.75 to 4.00

Old Material.—A little better feeling is noted. Consumers have been making more inquiries, particularly for rolling mill scrap, but no sales of importance have been made. In some grades weakness is still shown, while in others more firmness is noticeable. Transactions have been small and hardly sufficient to fix prices, which are still largely nominal, ranging about as follows for small prompt lots delivered in buyers' yards, eastern Pennsylvania and nearby points:

No. 1 steel scrap and crops	$13.50 to $14.00
Low phosphorus	17.00 to 18.00
Old steel axles	17.00 to 17.50
Old iron axles	18.00 to 19.00
Old iron rails	17.00 to 17.50
Old car wheels	14.00 to 15.00
Choice No. 1 R. R. wrought	15.00 to 15.50
Machinery cast	14.00 to 14.50
Railroad malleable	12.75 to 13.25
Wrought iron pipe	13.00 to 13.50
No. 1 forge fire scrap	12.00 to 12.50
No. 2 light iron	7.00 to 8.00
Wrought turnings	9.50 to 10.00
Stove plate	11.25 to 11.75
Cast borings	8.00 to 8.50
Grate bars	12.00 to 12.50

St. Louis.

ST. LOUIS, March 22, 1909.

In common with other centers, this market is affected more or less adversely by the introduction of the new tariff bill, especially in the lines in which reductions are recommended. It is likely this state of matters will obtain, to some extent, until the bill is passed, but it is the opinion of progressive business men that the favorable condition of the country, particularly the agricultural sections, will emphasize the improvement which spring usually brings.

Coke.—The demand for coke has been spasmodic. Notwithstanding the prevailing dullness in the market, prices remain steady, and being low, a decline is not looked for. Such business as has been booked is for small lots for prompt shipment. There are no inquiries to report for round lots. We quote as follows: Standard 72-hr. foundry $2.15 to $2.25, at oven, Connellsville, for prompt shipment, and $2.25 to $2.50 for delivery over the year.

Pig Iron.—Accumulation at the furnaces, together with the proposed tariff reductions, which are affecting unfavorably the demand for iron and steel, have brought about further weakness in the market for pig iron. Concessions in price, however, are confined mainly to spot shipment, both for the purpose of reducing stocks and from the conviction that an improvement in the demand is to be looked for in the near future. There is rather more inquiry, and it is coming from both large and small consumers. To a considerable extent, this inquiry is regarded in the hight of feelers for the purpose of keeping posted. The sales of the week have been small lots for prompt shipment. We quote No. 2 foundry at $12, Birmingham, for shipment over the second and third quarters, though some furnaces decline to book orders at this figure for the third quarter. For prompt shipment a firm offer of $11.50 would in some instances be accepted, and the tone of the market is weak at the close.

Finished Iron and Steel.—The leading interest reports a good business doing in structural iron and steel owing to lower prices stimulating the demand, which is due at this season from building contractors. The demand for bars and bar products is moderate. In standard rails there is some inquiry, but for light rails only a small degree of interest is being manifested by lumber mills, as prices are expected to rule lower. A steady demand is being experienced for all kinds of track material.

Lead, Spelter, Etc.—The market for pig lead is quite firm at 3.87½c. Considerable business is being done, and the inquiry is better. A steady market is reported for lead ore on the basis of $25 to $25.50 per 1000 lb., Joplin. Spelter is quiet at 4.65c. Smelters are not anxious sellers, as the tariff proposed, if adopted, will, it is believed, result in higher prices for zinc ore, and, in turn, advance the market for spelter. Zinc ore is held at $36 to $37.50 per ton, base, Joplin. Tin is down 50c. per 100 lb. Antimony is 10c. per 100 lb. lower. Copper is off ⅛c. There has been a good demand this week for these metals.

Old Material.—Lack of demand and weakness in pig iron have brought about a decline in prices on scrap iron and steel. This, however, seems to have failed to help the market so far as the demand is concerned, since there is not much from any source, and requests are even being made to delay shipments on contracts. There are no offerings on the part of railroads to report. Relaying rails are still in good request and scarce, with prices firm. We quote, per gross tons, f.o.b. St. Louis, as follows:

Old iron rails	$14.00 to $14.50
Old steel rails, rerolling	12.00 to 12.50
Old steel rails, less than 3 ft	11.50 to 12.00
Relaying rails, standard sections, subject to inspection	23.50 to 24.00
Old car wheels	12.50 to 13.00
Heavy melting steel scrap	11.50 to 12.00
Frogs, switches and guards, cut apart	11.50 to 12.00
Mixed steel	7.50 to 8.00

The following quotations are per net ton:

Iron fish plates	$12.50 to $13.00
Iron car axles	16.00 to 16.50
No. 1 railroad wrought	11.00 to 11.50
No. 2 railroad wrought	10.00 to 10.50
Railway springs	9.50 to 10.00
Locomotive tires, smooth	11.00 to 11.50
No. 1 dealers' forge	8.50 to 9.00
Mixed borings	4.00 to 4.50
No. 1 boilers, cut to sheets and rings	7.00 to 7.50
No. 1 cast scrap	10.00 to 10.50
Stove pipe and light cast scrap	7.50 to 8.00
Railroad malleable	8.00 to 8.50
Agricultural malleable	7.50 to 8.00
Pipes and flues	7.50 to 8.00
Railroad sheet scrap	7.00 to 7.50
Railroad grate bars	8.00 to 8.50
Machine shop turnings	6.50 to 7.00

The Glencoe Lime & Cement Company has increased its capital from $50,000 to $1,100,000, and acquired by purchase all but one of the lime manufacturing plants of St. Louis territory. The new company intends in the near future to bring such of these plants as require it up to first-class condition by the purchase and instalment of modern appliances and machinery.

A factory to cost about $75,000 is to be erected by the National Clock & Electric Mfg. Company, recently incorporated with a paid-up capital stock of $100,000.

The Granite City (Ill.) Steel Keg Company, a new manufacturing enterprise, will soon erect at Granite City a plant on 5 acres of ground. The main building will be 100 x 200 ft., two stories, constructed entirely of steel and concrete. There are to be four buildings of smaller size. The enterprise is being promoted by the National Lead Company.

Birmingham.

BIRMINGHAM, ALA., March 22, 1909.

Pig Iron.—The disposition of the trade to await developments relative to tariff changes is more pronounced than at the time of last report, but the market is not believed to be weaker as a result. An aggregate of all sales made by local agents in the past week is possibly less than 1000 tons, for which a basis of $12, Birmingham, has been maintained, but spot deliveries have been the only considerations. The quotation of $12, Birmingham, for No. 2 is still the lowest asking price heard of, and notwithstanding rumors to the contrary, parties thoroughly informed as to the attitude of the various producing interests are of the opinion that a firm offer for a round tonnage would not be productive of a material departure from the price being asked. It is pointed out that the reduction in cost effected during the early months of the depression was not so radical as was generally understood to have been, and that the concerns who would most likely be disposed to make further concessions are operating at relatively high costs. The margin afforded producers at the present asking price is known to be a narrow one, although, without an exception, local furnaces are producing a greater percentage of high grades than ever before recorded. The output of foundry grades is unchanged and stocks are being gradually increased despite the lack of interest on the part of prospective purchasers and the fact that the rate of consumption does not increase. Of the inquiries pending, small lots for early shipment are the chief considerations, and the general condition of the market is such as to indicate decidedly less interest for any requirements than was manifested some two weeks past. The inquiry for charcoal iron is such that producers do not anticipate accumulations of stock and adhere to prices that have prevailed some months.

Cast Iron Pipe.—This market is quiet, with the volume of business transacted in the week just ended composed chiefly of orders for maintenance work and for extensions by small municipalities. The status of prices is unchanged and prospects are quite favorable for material additions to order books in the remaining spring months. All local plants are in full operation, and the movement against contracts is satisfactory. The cast iron soil pipe market is believed to be stronger by reason of the reduction in active producing capacity. The buying of this material has been deferred by reason of unfavorable weather, and with the approach to changed conditions the demand is expected to improve to such an extent as to warrant an advance in quotations. We quote water pipe as follows per net ton, f.o.b. cars here: 4 to 6 in., $26; 8 to 12 in., $25; over 12 in., average $24, with $1 per ton extra for gas pipe. These prices are probably shaded on large contracts for municipal requirement.

Old Material.—Indications are probably less favorable for an increase in the rate of consumption, but asking prices have not suffered further decline. Transactions during the week were largely between dealers, without affording a criterion as to the actual status of values. We quote dealers' asking prices as follows, per gross ton, f.o.b. cars here:

Old iron rails	$13.50 to $14.00
Old iron axles	14.50 to 15.00
Old steel axles	12.00 to 12.50
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	10.00 to 10.50
No. 1 country	9.00 to 9.50
No. 2 country	8.50 to 9.00
No. 1 steel	9.00 to 9.50
No. 1 machinery	9.50 to 10.00
Tram car wheels	10.50 to 11.00
Standard car wheels	12.00 to 12.50
Stove plate and light cast	7.50 to 8.00
Cast borings	4.00 to 4.50

Cincinnati.

CINCINNATI, OHIO, March 24, 1909.—(*By Telegraph.*)

Inquiries have taken on a more cheerful tone. The jobbing foundries are gradually regaining their lost ground and a few are running daily heats, although the majority are still on a three day per week schedule. There is considerable comment among tool and machinery manufacturers and in financial circles over the results of the post office census just completed, which shows Cincinnati now in the half-million class, evidencing a steady gain during the months of depression, which is considered an excellent showing under the circumstances.

Pig Iron.—Salesmen from the large pig iron agencies are to-day centering their attention on some agricultural implement manufacturers in the North and Northwest, who are negotiating for good sized tonnages. At least half a dozen important deals are on, the consumers trying to reach the $11, Birmingham, basis on Southern iron, and to get a last half price of less than $12, which so far as can be ascertained the furnace interests are successfully resisting. The best price heard here for the last half is $12, Birmingham, although several interests are not disinclined to book business for delivery into the third quarter at the ruling price of $11.50. Northern iron is still quotable at $14.50, for No. 2, at Ironton, with very little doing. Pipe makers in Bradford and Lynchburg, Va., have bought 1500 tons of a Virginia iron to cover requirements and at an exceptionally attractive price. Dependent on the terms, a large agricultural implement manufacturer in Michigan is expected to close to-day for 1000 to 5000 tons. A Detroit automobile industry, which runs its own factory, is buying about 850 tons of foundry iron, divided between Northern and Southern, for the second and third quarters. The inquiry of a Kentucky foundry is said to be still pending, as is also that of an Ohio pipe shop and that of an Ohio stovemaker, who wanted 200 or 300 tons. Ohio silveries show no change in prices, all interests quoting their product on the basis of $18.50, at furnace, for 8 per cent. Low grades are a little easier. Much interest is manifested here over a rumor suggesting the suspension of operations of a large Southern interest on April 1, dependent on the volume of orders received in the interval. For immediate delivery and extending into the third quarter we quote f.o.b. Cincinnati, with freight rates of $3.25 from Birmingham and $1.20 from the Hanging Rock District, as follows:

Southern coke, No. 1 foundry	$15.25 to $15.75
Southern coke, No. 2 foundry	14.75 to 15.25
Southern coke, No. 3 foundry	14.25 to 14.75
Southern coke, No. 4 foundry	13.75 to 14.25
Southern coke, No. 1 soft	15.25 to 15.75
Southern coke, No. 2 soft	14.75 to 15.25
Southern coke, gray forge	13.25 to 13.75
Southern mottled	12.75 to 13.25
Ohio silvery, 8 per cent. silicon	19.70
Lake Superior coke, No. 1	15.95 to 16.45
Lake Superior coke, No. 2	15.45 to 15.95
Lake Superior coke, No. 3	14.95 to 15.45
Standard Southern car wheel	22.25 to 23.25
Lake Superior car wheel	21.75 to 22.75

(*By Mail.*)

Coke.—Some contracts for foundry coke are being renewed covering future wants, but little is heard of furnace brands. Connellsville furnace grades are quotable at $1.50 per net ton at oven for spot business and ranging up to $2, according to deliveries. Connellsville 72-hr. foundry is quotable at $1.90 to $2.10 on spot business, and on contract $2.25 to $2.40. Wise County grades are bringing about the same. Pocahontas coke is a little easier at about $1.55 for furnace, spot business, and $1.85 to $2 on foundry.

Structural Material.—The open market has brought out comparatively little new business in this section so far as can be ascertained. Among architects and mechanical engi-

neers it is learned that a number of good sized projects, which will call for considerable material, are on the drawing board, but no specifications of any size are under consideration at this time. Reports of shading on plates are heard here, a price of 1.25c., Pittsburgh, being mentioned.

Sheets.—Of the commodities involved in the open market declaration, sheets are having the best run in this locality, with bars a close second. The largest interest is enjoying a substantial run of orders on galvanized and black sheets from the gas stove and range manufacturers, and is selling for immediate deliveries on specifications. The Andrews Steel Company's mills, which have been running on a limited schedule, producing mainly for their own needs, are preparing actively for increased business through improved facilities. The 600 tons of steel, contracted through the American Bridge Company in the middle of February with which to replace the wood buildings covering the sheet mills, will be delivered soon, and the work will then be rushed to completion.

Bars.—There is still a good demand for bars from automobile and other vehicle and the agricultural implement manufacturers. Reports reach this market that the price has been shaded to 1.15c. by Indianapolis dealers who represent presumably some small independent mill or mills. One large independent interest reports that it is behind 15 to 30 days in deliveries.

Old Material.—Not enough business is going in scrap to justify any special schedule of prices, and the market appears weaker. It is quite certain that $10 per gross ton can be done on heavy melting steel and No. 1 railroad wrought. Cast borings are being taken from the tool establishments at ridiculously low prices, $3.10 being heard of today as paid to a shop which needed the room. Turnings are about $4.25 to $4.50. The demand for car axles and wheels from abroad, reported in the East, is not in evidence in this market.

Cleveland.

CLEVELAND, OHIO, March 23, 1909.

Iron Ore.—While some optimistic ore men have predicted that the movement in the coming season will reach 35,000,000 tons, as compared with 26,400,000 tons last year, others do not believe that the tonnage moved last year will be exceeded. If ore finally goes on the free list, as provided in the new tariff bill, this will cause some reduction in the movement, as shippers of Lake Superior ore expect that with the competition of foreign ores a large part of their Eastern market will be cut off. Furnacemen are making frequent inquiries about prices, but they are not yet ready to buy, and the information that is being given them by the ore men is that as far as they know last season's prices will be maintained this year. With very little business in sight everything points to a late opening of navigation this year, the outlook for the early part of the season not appearing much better than it did a year ago. In addition to the dispute with marine engineers over open shop contracts, vesselmen are threatened with trouble by the seamen, who are showing opposition to the welfare plan of the lake carriers. Prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, $4.50; Mesaba Bessemer, $4.25; Old Range non-Bessemer, $3.70; Mesaba non-Bessemer, $3.50.

Pig Iron.—The market shows no improvement in orders or inquiries and prices are slightly weaker. It is reported that a small lot of No. 2 foundry iron was sold for delivery in the next 60 days at $14.25, Valley furnace. The ruling price for delivery through the second quarter seems to be $14.50 to $14.75, Valley furnace. The only sales reported by local furnaces are two lots, one of 300 tons for the second and third quarter, and one of 200 tons for the last half, at $15 at furnace for No. 2. An inquiry for 750 tons of No. 3, from the central part of the State, resulted in the purchase of Southern iron. Some offers have come from consumers to contract for last half requirements at about the prevailing prices for second quarter, but furnace interests do not seem disposed to accept these offers. Consumers are well covered for present requirements and sales of carload lots are very scarce. Iron is being taken fairly well on contract but some furnaces are piling considerable iron. For delivery through the second quarter we quote, delivered, Cleveland, as follows:

Bessemer	$16.40
Northern foundry, No. 1	$15.90 to 16.40
Northern foundry, No. 2	15.40 to 15.90
Northern foundry, No. 3	14.90 to 15.25
Gray forge	14.40 to 14.65
Southern foundry, No. 2	15.85 to 16.35
Jackson County silvery, 8 per cent. silicon	20.05

Coke.—Inquiries for furnace coke for the last half for a local furnace have brought out some low prices, and a contract for the requirements will probably be closed within a day or two. There are no other inquiries. The output appears in excess of the demand, and furnace coke for spot shipment is reported to have been offered at $1.30 per net ton at oven. We quote standard Connellsville furnace coke at $1.40 to $1.60 for spot shipment and $1.70 to $1.90 on contract. The Connellsville standard grade of foundry coke is held at $2 to $2.25 for early shipment.

Finished Iron and Steel.—The leading interest reports that the volume of orders is holding up well in this territory, but with other mill agencies there has been some falling off. Following the price reduction practically no business was placed for two weeks until the uncertainty as to bottom prices was somewhat dispelled, and this was followed by a period of activity lasting about three weeks. The general feeling is optimistic, and it is believed that business will gradually improve after the tariff question is settled. The recently established prices seem to be firmly maintained in this territory on all lines, and consumers, as a rule, are no longer withholding orders for material actually wanted, in the hope that there will be further concessions, but they are not anticipating their requirements. Orders are mostly for small lots. The demand is best for steel bars. The demand for plates shows some improvement, and there is a fairly good call for sheets. The demand for structural material in small lots is holding up well, and while no new business requiring a large tonnage has developed, the outlook is regarded as encouraging. Bridge builders report a fair amount of railroad work in sight. The contract for the steel for the Brotherhood of Locomotive Engineers' Building has not yet been placed by the King Bridge Company, which has the fabricating contract, but which has been trying to get price concessions on the 2400 tons needed. Among the inquiries pending is one for about 800 tons of twisted bars for concrete construction work. It is expected that the contract will be closed this week for the new blast furnace to be built in Cleveland by Corrigan, McKinney & Co. The bar iron market is very dull. Both local mills are running this week, but with a limited amount on their books. Local mills are holding to 1.25c., Pittsburgh, for iron bars, but this price is being shaded by Western mills. Sellers are adhering to the policy of taking no orders at present prices for delivery beyond July 1. Jobbers report some improvement in orders.

Old Material.—The market is still unsettled and there have not been enough sales to establish a new price basis. With prices adjusted it is believed that mills would buy in small quantities, but dealers and the mills have been unable to get together as yet on prices. Considerable scrap is being offered by dealers, but at prices that are not attractive to consumers. The scrap offered for sale by the Lake Shore Railroad last week is understood to have brought prices somewhat better than the present ruling quotations. Dealers' prices per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails	$12.50 to $13.00
Old iron rails	16.00 to 16.50
Steel car axles	17.00 to 17.50
Old car axles	14.00 to 14.50
Heavy melting steel	11.50 to 12.00
Relaying rails, 50 lb. and over	21.50 to 22.50
Agricultural malleable	11.00 to 11.50
Railroad malleable	11.50 to 12.00
Light bundled sheet scrap	7.50 to 8.00

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$17.00 to $17.50
Cast borings	6.00 to 6.50
Iron and steel turnings and drillings	7.00 to 7.50
Steel axle turnings	9.00 to 9.50
No. 1 busheling	10.00 to 10.50
No. 1 railroad wrought	12.00 to 12.50
No. 1 cast	11.50 to 12.00
Stove plate	10.00 to 10.50
Bundled tin scrap	9.00

Buffalo.

BUFFALO, N. Y., March 23, 1909.

Pig Iron.—The market is quiet, with little inquiry, and such new business as is being received covering small lots only. It is reported in some quarters that there has been a tendency to shade prices on the part of one or two interests, but most of the furnacemen are maintaining nominal schedule prices as closely as possible on such quotations as are made. We quote as follows for second quarter, f.o.b. Buffalo:

No. 1 X foundry	$16.00 to $16.50
No. 2 X foundry	15.50 to 16.00
No. 2 plain	15.25 to 15.50
No. 3 foundry	15.00 to 15.50
Gray forge	15.00 to 15.00
Basic	15.50 to 16.00
Malleable Bessemer	16.50 to 17.00
Charcoal	20.00 to 20.50

Finished Iron and Steel.—There is an increase in inquiry for bars and plates, with a good proportion developing into orders. Business in structural material also made a good showing for the week. An order for 250 tons of reinforcing bars for concrete bin work in the new Wheeler elevator here was taken by the Carnegie Steel Company; also 100 tons reinforcing bars for the Development & Funding Company's plant addition at Niagara Falls. The Buffalo Structural Steel Company received the contract for the steel for the Frontier Iron Company's new plant here, 175 tons; also steel for the addition to the Buffalo Copper & Brass Rolling Mill, 175 tons. Under the contract just awarded

by the New York Central for grade crossing work on its Buffalo Belt Line, about 1600 tons of steel for five separate grade crossing structures at north Buffalo will be furnished by the Lackawanna Steel Company, to be fabricated and erected by the King Bridge Company. Bids will be received March 31 for structural steel for the Sinclair-Rooney Building, requiring about 300 tons, and within a week or two bids will be received by the Monarch Engineering Company, Buffalo, for 180 tons of structural material, including 75 tons of plates for the Wheeler elevator frame work, and for about 300 squares of galvanized corrugated sheets. The date for receiving revised bids for steel for the Onondaga Hotel, Syracuse, has been postponed until March 29.

Old Material.—The market is still in an unsettled and unsatisfactory condition, with no indications of improvement, there being almost an entire absence of demand. We quote dealers' nominal prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel scrap	$14.00 to $14.50
Low Phosphorus steel scrap	18.00 to 19.00
No. 1 railroad wrought	15.00 to 15.50
No. 1 railroad and machinery cast scrap	14.00 to 14.50
Old steel axles	17.00 to 18.00
Old iron axles	20.00 to 21.00
Old car wheels	14.50 to 15.00
Railroad malleable	13.00 to 13.50
Boiler plate	12.00 to 12.25
Locomotive grate bars	11.75 to 12.25
Pipe	11.75 to 12.25
Wrought iron and soft steel turnings	8.50 to 9.50
Clean cast iron borings	7.00 to 8.00
No. 1 busheling scrap	12.50 to 13.00

The Federal Rolling Mill Company's mill resumed operations this week on contract specifications for steel bars.

It is understood that G. S. Metcalf, contracting engineer, Temple Building, Chicago, with Canadian branch office in Montreal, has been given the contract for a 10,000,000-bushel concrete elevator, to be erected by the Canadian Pacific at Victoria Harbor, Georgian Bay, Ontario.

The German Iron Market.

BERLIN, March 15, 1909.—The recent heavy price cutting in the American iron market has come as a bitter disappointment for the German iron trade. Iron men here had been looking for substantial signs of improvement on the other side of the Atlantic, and it had come to be assumed among them that any change on that side must necessarily be for the better. That a sharp break in prices was to be expected 15 months after the financial crisis, after many signs of business improvement had been recorded, and after prices on the stock exchange had recovered much of their lost ground, had been believed by nobody on this side. The expectation of better business in the American iron trade, moreover, had long been referred to as one reason why German iron manufacturers should keep up their courage. All the keener, therefore, is the feeling of disappointment over the latest American news.

German Prices Close to Bed Rock.

How the American reductions have affected or will still affect German prices is a matter on which opinions are not wholly agreed. Prices have undoubtedly grown heavier in the German market within the past week or two, and in many quarters this is attributed directly to that American influence. It is not believed, however, that prices on this side will go much lower, and that for the simple reason that they are already close down to bed rock, except where they are fixed by trade combinations. This latter exception applies to steel rails, the price of which, it is understood, is fixed by an international agreement for the foreign markets, while the German makers have contracts with the domestic railroads for long periods at a uniform price, which is a high one (almost $29 for the Prussian roads). It was at first reported here that the American rail price had also been cut by $3. Although this turned out to be erroneous it is regarded as probable that the American manufacturers will have to reduce rail prices, and it is believed that this would cause much unsettlement of such prices in European markets.

This whole incident has given rise to no little moralizing among German iron consumers as to the policy of the great trade organizations in keeping up high prices for iron and steel in periods of depression. The recovery of prosperity, it is alleged, has been delayed in Germany, as well as in America, by the unreasonable sticking to high prices on the part of the organizations. Pig iron was kept much too high until the syndicates broke up last fall, and steel billets are still much too high in proportion to the prices of finished products, so that few mills depended upon the Steel Syndicate for their supply of steel are earning profits.

Business Poor in February.

So far as the market position in Germany is concerned, it is everywhere admitted that February not only brought no improvement but that business even grew worse. In nearly all sections of the market orders have been scarcer, and the unwillingness to take deliveries on contracts has grown more pronounced. The position of wholesale dealers who placed large orders for steel billets and structural shapes in the months of November and December has become more embarrassing to them. Their speculative buying has turned out very badly, as they are not now able to find customers for whom to fill their contracts. Hence they are not able to send specifications for what they had ordered, and the steel mills are feeling the pinch of this state of things. While there have been no striking changes in prices since a month ago, the tendency is still slightly downward. At the two last fortnightly sittings of the Duesseldorf Exchange most lines of iron and steel registered somewhat lower prices.

In the ore market the outlook is by no means encouraging. In the Siegen District the orders in hand are somewhat greater than last year, but the furnaces are very laggard in calling for the delivery of ores contracted for. In the Luxemburg-Lorraine District the buying of ores seems to have come to a standstill. Producers who are in a position to deliver the better class of ores were able to get contracts before the end of 1908 for their product for the greater part of this year, but there is next to no demand for the poorer ores. The export trade continues to suffer from the sharp competition of the richer French ores.

Pig Iron, Scrap and Steel Billets.

New orders for pig iron are extremely rare now. Consumers appear to have grown more unwilling to engage themselves beyond their momentary needs. The volume of orders on hand, however, is pretty good, in view of the heavy buying last fall after the breakdown of the syndicates, and on the whole the production of the furnaces is greater than might have been looked for, considering the general state of the market. The country's production of pig iron in January was 1,021,700 metric tons, which was considerably above the level of the preceding half year. The production is somewhat beyond the requirements of the trade, and stocks are growing to some extent. In view of the scarcity of new orders there is very sharp competition for the little business coming on the market. The latest prices are as follows: German hematite, 58 to 60 marks; No. 3 foundry, 56 to 58 marks; Luxemburg No. 3 foundry, 50 marks; Luxemburg forge, 48 marks. In the Siegen District prices are about 60 to 63 marks for puddling and steel making qualities and 82 to 87 marks for spiegeleisen. Negotiations for the reorganization of the Luxemburg Syndicate are still in progress, but the outlook for a favorable result has grown uncertain, since some of the furnaces are demanding too big allotments.

In scrap business is pretty good, but it is mentioned that recent experiments in increasing the proportion of pig iron in charging the open hearth furnaces is narrowing the demand for steel scrap. The price ranges from 50 to 60 marks, according to quality.

In steel billets a slight increase of shipments since the beginning of the year is noted, but there is little new buying. Of course, consumers generally are amply supplied for the rest of the current quarter, but there are no reports indicating that orders for the next quarter are coming forward to any extent, although the mills several weeks ago gave out the new price lists, which showed no reductions from existing prices. The Steel Syndicate admits that the export trade is quiet, and other reports represent it as even worse than that.

Finished Rolled Products.

The rail market is without change. The Government railroads are calling for the normal volume, but home consumers of grooved and other minor qualities of rails are buying only to meet their most urgent requirements. The mills had hoped to carry through an advance in the export prices of the latter, but the price cutting in America has blasted that hope, and it is not certain that it will not necessitate still further reductions in home prices, although these have already been pressed pretty close down to the level where profits cease.

There has been a considerable increase in the shipments of beams and other structural shapes with the Steel Syndicate mills, due to the reduced prices put in force at the beginning of the year, but it appears that much of these shipments are going into the stores of dealers, and it is a matter of much doubt whether their speculation for an increased activity in building this spring will be verified. As yet there is little sign that building operations will be above the low level of last year.

The market for both soft steel and iron bars is dull and weak. Competition in soft steel bars has again caused considerable price cutting. The average is now said to be considerably below 100 marks, although it was slightly above that two months ago. The orders for this quarter's business, placed some three or four months ago, were much larger than had been looked for, but the mills are now having difficulty in getting their customers to take the bars then ordered, and in some cases legal measures have had to be adopted. The spring increase of orders for iron bars has not yet put in an appearance. Orders on hand are light, and some of the mills have had to be shut down. The price is about 122.50 marks. The few works that turn out a superior quality of iron bars are somewhat better supplied

with work, and their prices are higher than the figure just quoted.

In band and hoop iron, heavy plates and sheets, business is very unsatisfactory. In bands and hoops, however, a slightly better tendency is reported, and it is expected that the spring business will show up better still. In heavy plates the present prices, which range between 105 and 108 marks, are said to be unremunerative. The home demand for ship and boiler plates is very light, and foreign orders are difficult to obtain in view of the sharp competition abroad. In sheets business is somewhat better, and the mills have work for some time ahead.

The Wire Trade the Most Satisfactory.

The most satisfactory section of the entire trade is that of wire and wire products. The rollers of wire rods have consequently also a very good business. Both in wire and wire nails the trade is reported to be quite brisk, and this applies both to the home and the foreign business. Some of the mills are not able to keep up with their orders. Export prices for wire rods have recently risen 3 marks per ton.

The trade in steel castings is considerably demoralized, and the trade organization has had to reduce prices twice within a comparatively brief time in order to meet the competition of outsiders. The existence of the organization is regarded as threatened by the precarious situation.

The position of the hardware trade is still unsatisfactory, but in certain sections an improvement due to foreign orders has recently been reported. This latter statement applies to the Solingen trade, where better orders from the United States for cutlery were received this winter. Nevertheless, the bad condition of the general hardware trade is evident from the fact that the shops are employed to less than three-fourths of their capacity. In builders' hardware, which ought now to be going off briskly to meet the wants of the spring trade, no improvement whatever is to be observed. Business in rivets and screws is dull. At the machine tool shops no improvement in orders has been noted.

Metal Market.

NEW YORK, March 24, 1909.

Pig Tin.—A very slight improvement in the demand for tin is reported, and it is remarkable that the price holds so steady in the face of so many adverse circumstances. Price changes have been within narrower limits than in any time for over three years. They are as follows:

	Cents.
March 17	28.45 to 28.50
March 18	28.45
March 19	28.45
March 22	28.47½
March 23	28.50
March 24	28.50

The arrivals so far this month have amounted to 3957 tons, and of the 2866 tons of tin afloat nearly 1500 tons will arrive this month. This gives a supply of 5400 tons in addition to the stock of 2300 tons held here March 1. In other words, the tin available for March delivery will be nearly 7500 tons, and deliveries will not be more than one-half of this amount. Where the tin is going to is getting to be more of a mystery. The London market closes to-day at £129 2s. 6d. for spot, the same as last week. Futures are held at £130 12s. 6d., an advance of 11s. 6d. in the week.

Copper.—Drawers of copper wire are doing more work than at any time in two years. One plant, at least, is running full time. This has stimulated buying and more copper has been sold to American consumers than in the same space of time since the panic. This buying movement has been swift, and consumers here have entered the market with more vigor than in a long time. While some large sales have been made for European account, the significant thing is that consumers here have at last come into the market. Sales of electrolytic were made last week at 12.30c. and 12.40c., cash. Early this week some business was done at 12.50c., delivered, 30 days, but yesterday sales were made at 12.50c., net cash. To-day we quote electrolytic 12.50c. to 12.75c., net cash. At least 25,000,000 lb. have been sold. Lake is not in active demand, but producers have sold at 13c., and this figure has also been declined by sellers.

Pig Lead.—The market is very firm. Considerable business has been booked by the leading interest at 4c. Outside sellers are asking 4.05c. for similar lead, but for spot shipment. In St. Louis the market is firm at 3.90c. to 3.95c. Many believe that the prevailing low prices are due to tariff agitation.

Spelter.—Brass manufacturers have bought some April spelter, but prices have not been disturbed much. In the Pittsburgh District there has been more buying by galvanizing works than for some time. In St. Louis prime Western brands are available at 4.65c. to 4.70c., and in New York at 4.80c. to 4.85c. The large amount of this metal in the vicinity of New York is no longer pressing on the market.

Antimony.—Business is even duller than last week, but prices are without change. Hallett's can be had at 7.75c., Cookson's at 8c. and other best known brands at 7.50c.

Tin Plate.—The reduced price has brought out some new business, and consumers are not only specifying freely on old contracts, but are again entering the market as buyers. The price is unchanged, at $3.64, New York, and $3.45, Pittsburgh, for 100-lb. I. C. coke plates, subject to the usual rebate of 5c. In Swansea Welch plates are unchanged, at 11s. 6d.

Old Metals.—A moderate volume of business is moving, but prices are so low that few are willing to part with their scrap. Marketable scrap is scarce, and prices are firmer, having advanced all along the line. Dealers' selling prices are as follows:

	Cents.
Copper, heavy cut and crucible	12.25 to 12.50
Copper, heavy and wire	12.00 to 12.25
Copper, light and bottoms	11.00 to 11.25
Brass, heavy	9.00 to 9.25
Brass, light	7.00 to 7.25
Heavy machine composition	11.25 to 11.50
Clean brass turnings	8.00 to 8.25
Composition turnings	9.75 to 10.00
Lead, heavy	3.75
Lead, tea	3.40
Zinc scrap	3.62½

New York.

NEW YORK, March 24, 1909.

Pig Iron.—The market is very quiet, sales being confined to small lots for early delivery. Various interests are testing the market, but not very seriously. Some large Southern interests have made efforts to place round blocks of pig iron, going as low as $11 for No. 2 foundry, Birmingham, without success. We quote $16.50 to $16.75 for No. 1 Northern foundry, $16 to $16.50 for No. 2 foundry and $15.50 to $15.75 for No. 2 plain, tidewater. Alabama iron is quoted at $16 to $16.50 for No. 1, and $15.75 to $16 for No. 2 foundry.

Steel Rails.—No large business has been closed in the past week. Through one New York office orders for 5000 tons were taken, a portion of these rails going to Alaska. The Illinois Steel Company has booked 1600 tons additional for the St. Paul. Frog and switch business has been more active than might be inferred from the general scale of railroad buying. With some interests such business has been quite up to the volume of two years ago.

Structural Material.—The inducements held out to railroads, as well as those interested in new buildings, are proving effective in an increase in activity in structural lines. Railroad inquiry is much increased, and there are evidences that manufacturers consider the present basis attractive enough to warrant undertaking construction work that had been planned and put aside. The fabricating companies are not willing to load up with business whose execution is likely to be long drawn out, and the contracts that offer good tonnages that can be put in hand at once bring out the lowest prices. In New York City the Gimbel department store building on Sixth avenue, running from Thirty-second to Thirty-third streets, is the chief business closed. The 12,000 tons of steel will be rolled by the Bethlehem Steel Company, and the Milliken Brothers' receivers will do the fabricating. A loft building on East Twenty-seventh street, about 2200 tons, will be fabricated by the same interests. A contract about to be let is that for the Best & Co. store at Thirty-fifth street and Fifth avenue, about 2000 tons. Railroad work is developing on a considerably larger scale than in many months. About 75,000 tons is either pending or about to be figured on. The Florida East Coast's 206 bridges for the Key West extension will have a total length of about 3 miles and involve about 12,000 tons of steel. The Erie is in the market for about 9000 tons, of which 5000 tons will be for a viaduct at Jersey City, over 3000 tons for its general requirements in the coming year, and 700 tons for a bridge over the Hackensack River. The New York Central will need in all 33,000 to 34,000 tons of structural steel, including Lake Shore and Michigan Central requirements and an additional contract for the New York terminal work. The bids on the large Curtis Publishing Company building at Philadelphia go in to-morrow. We quote as follows for tidewater deliveries on mill shipments: Beams, channels, angles and zees, 1.46c.; tees, 1.51c. On beams, 18 to 24 in., and angles, over 6 in., the extra is 0.10c. Structural material, cut to lengths, is sold in small lots at 1.90c. to 2c.

Ferroalloys.—Sales of 80 per cent. ferromanganese continue to be made at $42, Baltimore, but business is dull. For 50 per cent. ferrosilicon $60 is asked in Pittsburgh, but this has been considerably shaded.

Bars.—Consumers are buying such small lots of bar iron that an order for 75 tons is now regarded as desirable. Competition is keen, with common iron quoted at 1.30c. to 1.40c. and best refined at 1.45c. to 1.50c., at tidewater. Steel bars are quoted at 1.36c. to 1.41c., tidewater, with an occasional concession reported.

Plates.—Business is exceedingly dull, with Eastern

manufacturers quoting 1.46c. to 1.56c., tidewater, according to quantity, on tank plates and ship plates.

Cast Iron Pipe.—Current transactions are not large, but reports are coming from engineers that quite a number of important undertakings are likely to be carried through this summer, each requiring considerable quantities of pipe. New York City is now expected to advertise at almost any time for bids on the extension of its high pressure service, which has been pending for a long time. It will also need quite a quantity of pipe for ordinary water supply purposes, on which specifications will shortly be out. The city of Reading opened bids on Tuesday evening for about 1000 tons. J. B. Duke, Somerville, N. J., is in the market for about 1000 tons for a private undertaking. A New York contractor will probably buy about 1000 tons this week, to be applied to a contract recently secured for this city. New England towns are steadily coming in the market for small quantities. Carload lots of 6-in. are quoted at $23.50 per net ton, at tidewater.

Old Material.—The market continues seriously unsettled, the provision in the new tariff bill proposing to reduce scrap duties from $4 to only 50c. per gross ton having a further disturbing effect. Little is doing in any line, although it is probable that foundries are purchasing more largely than other consuming interests. Dealers generally have good sized accumulations on hand, and the railroad companies continue to endeavor to force more material on an overstocked market, some of them departing from their long established practice of issuing monthly lists of scrap by sending out supplementary lists to be bid on the latter part of this month. While the following quotations, which are per gross ton for New York and vicinity, represent what has been realized on material sold, it must be understood that somewhat higher prices are likely to be asked on purchases made in the usual way:

Old girder and T rails for melting	$9.50 to $10.00
Heavy melting steel scrap	9.50 to 10.00
Relaying rails	18.00 to 19.00
Old iron rails	14.00 to 14.50
Standard hammered iron car axles	14.50 to 15.00
Old steel car axles	14.00 to 14.50
No. 1 railroad wrought	11.50 to 12.00
Iron track scrap	9.50 to 10.00
No. 1 yard wrought, long	11.00 to 11.50
No. 1 yard wrought, short	9.50 to 10.00
Light iron	6.00 to 6.50
Cast borings	5.00 to 5.50
Wrought turnings	6.00 to 6.50
Wrought pipe	8.00 to 8.50
Old car wheels	13.00 to 13.50
No. 1 heavy cast, broken up	11.00 to 11.50
Stove plate	9.50 to 10.00
Locomotive grate bars	9.50 to 10.00
Malleable cast	10.50 to 11.00

Iron and Industrial Stocks.

NEW YORK, March 24, 1909.

The stock market has been under some pressure since last report. The prices realized on Thursday of last week were higher than for several days following, but on Monday of this week an upward movement set in which recovered the greater part of the lost ground. The range of active iron and industrial stocks from Thursday of last week to Monday of this week was as follows:

Allis-Chalm., com..	13 - 13½	Republic, com.....	20½- 21
Allis-Chalm., pref.....	43	Republic, pref.....	70¼- 71
Beth. Steel, com...	21 - 21⅜	Sloss, com.....	72 - 72¼
Can, com.....	8⅛- 8⅜	Pipe, com.....	25⅞- 27
Can, pref.....	73⅝- 75	Pipe, pref.....	67½- 70½
Car & Fdry, com..	48¼- 49¼	U. S. Steel, com...	43¼- 45⅝
Car & Fdry, pref..	110½-110⅞	U. S. Steel, pref...	109½-111
Steel Foundries....	35⅝- 35½	Westinghouse El..	79 - 79⅜
Colorado Fuel.....	32 - 33⅛	Chi. Pneu. Tool....	20½- 20⅞
General Electric...	153¼-154	Am. Ship, com....	55 - 55½
Gr. N. ore cert....	65¼- 66½	Cambria Steel.....	34 - 34½
Int. Harv., pref...	111⅝-111¾	Lake Sup. Corp....	18½- 19⅜
Locomotive, com..	50½- 52	Penna. Steel, pref.	102 -103
Pressed Steel, com.	36 - 36¾	Warwick	7½- 8
Pressed Steel, pref.	97¼- 98¼	Crucible st., com..	7 - 7½
Railway Spr., com.	36⅛- 36½	Crucible St., pref..	57½- 59⅛
Railway Spr., pref.....	100	Harb.-Walker Ref., pref..	80

Last transactions up to 2 p.m. to-day are reported at the following prices: United States Steel common 45, preferred 111, bonds 103; Car & Foundry common 48½, preferred 110; Locomotive common 51½, preferred 114; Colorado Fuel 32¾; Pressed Steel common 36, preferred 97¼; Railway Spring common 36, preferred 72; Republic common 20½, preferred 70⅞; Sloss-Sheffield common 72; Cast Iron Pipe common 27, preferred 70; Can common 8¼, preferred 74⅜.

The Garland Corporation, Pittsburgh, has sold an issue of $1,500,000 6 per cent. sinking fund gold bonds, to be used in liquidating the floating indebtedness of the company, amounting to less than $400,000; also to furnish additional working capital and to provide for some enlargements and improvements to the plants of this Company. The Garland Corporation controls the Garland Nut & Rivet Company, the Safety-Armorite Conduit Company and Woodhouse-Bopp & Co., all located at West Pittsburgh, Pa. For the three years ending December 31, 1908, the average net earnings, after depreciation, were $250,000. As net earnings in 1908, on account of the depression, were $172,000, the earnings for 1906 and 1907 averaged over $285,000. A minimum sinking fund of $50,000 is provided for, beginning July 1, 1911, and can be only invested in the purchase of these bonds.

Chisholm & Chapman, 18 Wall street, New York, furnish the following quotations on iron and steel bonds:

	Bid.	Asked.
Bethlehem Steel, 1st ext. 5s, due January, 1926...	79⅝	79¾
Bethlehem St., purch. money 6s, due August, 1998.	118½	..
Buffalo Iron 5s, due October, 1925.....	98	101
Buffalo & Susquehanna Iron 1st 5s, June, 1932....	..	..
Buffalo & Susquehanna Iron deb. 5s, January, 1926 ..	..	..
Dominion Iron & Steel 5s, due July, 1929.....	79	80½
La Belle Iron Works 1st 6s, due December, 1923..	104	105
Lackawanna Steel 1st 5s, due April, 1923.....	..	95
Maryland Steel 1st 5s, due February, 1922.....	102¼	103½
Penn. Steel 1st 5s, due November, 1917.....	101	103
Pennsylvania & Maryland Steel 6s, due Sept., 1925.	110	112
Republic Iron & Steel 1st 5s, due October, 1934...	95½	96⅝
Sloss Iron & Steel 1st 6s, due February, 1920.....	104	107
Sloss Iron & Steel consol. 4½s, due April, 1918...	94½	97
UNITED STATES STEEL CORPORATION.		
Collateral Trust 5s, Series A, C, E, due April, 1951.	114	115½
Collateral Trust 5s, Series B, D, F, due April, 1951.	114	115½
Sinking Fund 5s, due April, 1963.....	102¾	103
Union Steel 1st 5s, due December, 1952.....	104½	105
Clairton Steel 5s, due 1908-1913.....	100	...
St. Clair Furnace 1st 5s, due 1910-1939.....	100	...
St. Clair Steel 1st 5s, due 1908-1926.....	100	...
Illinois Steel deb. 5s, due January, 1910.....	100	...
Illinois Steel 5s, due April 1, 1913.....	100	...

All bonds quoted "and interest."

Dividends.—The American Brake Shoe & Foundry Company has declared a quarterly dividend of 1¼ per cent. on the common and 1¾ per cent. on the preferred stock, both payable March 31.

The E. W. Bliss Company has declared a quarterly dividend of 2½ per cent. on the common stock and 2 per cent. on the preferred stock, payable April 1.

The National Metal Trades Election.

Commissioner Robert Wuest, of the National Metal Trades' Association, has issued to the membership of that organization, under the rules prescribed in article 4, section 8 of the new constitution, the ballot which is to be presented at the eleventh annual convention of the association in New York City April 14 and 15. It is the first election to be held under the new rules. Members to be so honored are as follows:

President, Howard P. Eels, Bucyrus Company, South Milwaukee, Wis.; first vice president, J. H. Schwacke, William Sellers & Co., Inc., Philadelphia; second vice president, H. W. Hoyt, Great Lakes Engineering Works, Detroit; treasurer, William Lodge, Lodge & Shipley Machine & Tool Company, Cincinnati, and Councillors as follows: For two years—R. D. Reed, H. B. Smith Company, Westfield, Mass.; Henry Sharpe, Brown & Sharpe Mfg. Company, Providence, R. I.; Edgar McDougal, Allis-Chalmers-Bullock, Ltd., Montreal, Canada; F. C. Caldwell, H. W. Caldwell & Son Company, Chicago, Ill.; L. H. Kittredge, Peerless Motor Car Company, Cleveland, Ohio; B. B. Quillen, Cincinnati Planer Company, Cincinnati, Ohio. One year—Paul B. Kendig, Seneca Falls Mfg. Company, Seneca Falls, N. Y.; M. K. Bowman, Griscom-Spencer Company, New York City; Herbert Rice, Waverley Company, Indianapolis, Ind. To serve unexpired terms—E. P. Robinson, Atlantic Works, East Boston, Mass.; W. A. Layman, Wagner Electric Mfg. Company, St. Louis, Mo.; George Mesta, Mesta Machine Company, Pittsburgh, Pa.

The names of J. W. Gardner, Gardner Governor Company, Quincy, Ill.; W. D. Sayle, Cleveland Punch & Shear Works, Cleveland, and M. H. Barker, American Tool & Machine Company, Boston, are signed to the document as the Nominating Committee.

United States Commissioner of Labor C. P. Neil will be one of the speakers at the convention. He will talk on "Industrial Peace." Commissioner Wuest will announce the entire programme within a few days.

The report of the Swedish Chamber of Commerce of New York for 1908 gives the value of imports of iron and steel from Sweden to the United States in the fiscal year ending June 30, 1908, at $2,209,353, against $2,589,251 and $2,335,036 in the fiscal years 1907 and 1906, respectively. The imports of Swedish bar iron in the fiscal year 1908 amounted to 29,205 gross tons, wire rods to 11,379 tons and billets and blooms to 1265 tons.

The Central Foundry Company's Report.

The annual report of the Central Foundry Company makes the following statement of the results of the operation of its plants during the period of 18 months ending December 31, 1908:

Net income, after deducting ordinary operating expenses, exclusive of charges for maintenance		$474,678.21
Against which the following charges have been made:		
Maintenance of plants and equipment, including replacements	$133,259.07	
Interest paid and accrued	347,670.00	
		480,929.07
Showing a deficit for the 18 months of		$6,250.86
The net earnings of the Central Iron & Coal Company and the Central Radiator Company, both of whose capital is owned by the Central Foundry Company, were		115,540.76

The condensed balance sheet, as of January 2, 1909, is as follows:

Assets.

Cash on hand and in banks		$48,104.81
Bills receivable		24,416.55
Accounts receivable:		
Customers	$356,353.57	
Deduct reserve for freight allowances	21,148.29	
	$335,205.28	
Other accounts receivable	6,493.85	
		341,699.13
Interest receivable, accrued		14,960.00
Investment account:		
Central Iron & Coal Company, capital stock at par	$1,000,000.00	
Central Radiator Company, capital stock at par	200,000.00	
Central Iron & Coal Company bonds at market	396,000.00	
Central Foundry Company debenture bonds at market	222,000.00	
Central Foundry Company, capital stock at market	4,987.50	
		1,822,987.50
Inventories:		
Finished product	$455,584.36	
Raw material and supplies	149,874.44	
		605,458.80
Properties and equipment		14,907,118.57
Deferred charges and accounts unadjusted		83,331.70
Deficit account		6,250.86
Total		$17,854,327.92

Liabilities.

Bills and accounts payable		$587,099.62
Bond interest accrued		38,630.00
Debenture 6 per cent. bonds of May 1, 1919		3,863,000.00
Capital stock:		
Preferred	$7,000,000.00	
Common	7,000,000.00	
	$14,000,000.00	
Less held in treasury (3500 shares of each class)	700,000.00	
		13,300,000.00
Reserve accounts:		
For depreciation of inventories	$24,195.00	
For cash discounts and doubtful accounts	26,759.38	
Other reserves	14,643.92	
		65,598.30
Contingent liabilities:		
Bills receivable discounted	$7,236.99	
Bills of subsidiary companies indorsed	30,000.00	
	$37,236.99	
Total		$17,854,327.92

From President August Heckscher's accompanying remarks the following extracts are taken:

The 18 months under review have been the most difficult and trying in the company's experience. The stocks of pig iron on hand and the current contracts for nearby deliveries were at the time of the last annual report at a very high cost, on account of congestion of traffic and shortage of iron, rather larger in quantity than usual, which iron had to be consumed and has since been replaced by iron at very much lower prices, entailing a large depreciation in inventories. The same thing was true of the inventories of finished goods which were necessarily made up out of high priced iron and with an unusually high labor cost, due to the then prevailing activity in all lines of manufacture. These high priced goods have since been disposed of and have been replaced by goods made from low priced iron, with a considerably reduced cost of manufacture.

The sales of soil pipe and fittings footed 46,203 tons during the year closing December 28, 1907. For the 12 month of 1908 they have been 47,296 tons, so that the company has escaped contributing its share to the large recession in tonnage which this country has chronicled since 1907 and has increased its sales.

The sales of universal pipe, however, were during the period under review very severely curtailed, which fact is also true in a less degree of the F. & W, business. Since the first of January, However, the amount of new business for universal pipe taken has shown a large increase over last year; in addition to which the company has received a large order for pipe to be used in the installation of a high pressure fire service system in Philadelphia. The ability to get this business against most strenuous competition is most gratifying to the officers, who feel assured that, although this contract is by far the largest the company has ever secured, it is but the opening wedge to a large business for high pressure service, for which the pipe is peculiarly well adapted.

Our sales in all lines have shown a healthy improvement over last year, and although prices are extremely low, with the plants well located and their equipment renewed and improved, starting as we do from such a low level of prices, the future certainly looks brighter than we have been able to forecast at any time in the past.

The plant of the Radiator Company has been maintained and its equipment improved. The results of its operation have been satisfactory, the earnings, indeed, having been larger than in any previous year in the history of the company; the outlook is that in normal times this department will produce a considerable income for the Central Foundry Company, the shipments for January and February showing a considerable increase over last year.

The earnings of the furnace, coal, coke and iron ore properties of the Central Iron & Coal Company in the South have been satisfactory and the plant is in good operating condition.

On August 1, 1908, the Iron & Coal Company's $500,000 mortgage matured. It was paid off and a permanent bond issue of $2,000,000 authorized, of which $1,000,000 was reserved for future improvements and extensions, and the remaining $1,000,000 was purchased by the Central Foundry Company and the proceeds used to redeem the said $500,000 mortgage and reimburse the Foundry Company for advances made. Since then, $520,000 par value of these bonds have been resold at satisfactory prices, and $296,000 par value of the Central Foundry Company's debentures purchased and placed in its treasury.

Western Pennsylvania Engineers to Visit the Mesta Machine Company's Works.

The Engineers' Society of Western Pennsylvania, Pittsburgh, will visit the plant of the Mesta Machine Company, at West Homestead, Pa., Saturday, March 27. A special train will leave Union Station at 2 p.m. An inspection of the fireproof office building will first be made, after which the machine shop will be looked over. On the erecting floor will be seen a 36 x 72 in. Corliss engine, with 100-ton flywheel, which was built in 30 days from the receipt of the order; a blast furnace blowing engine, with steam cylinder, and air cylinder each 84 in. in diameter, 60-in. stroke, also the machinery for the great 600-ton metal mixer for the Tennessee Coal, Iron & Railroad Company, Ensley, Ala.

The roll foundry department will next be inspected, and there will be witnessed the process of casting water chilled rolls. The party will then go to the steel foundry department, where an opportunity will be given to see the pouring of a 60,000-lb. steel heat. The new foundry department will next be visited, and there will be poured a 160,000-lb. casting for an engine bed plate. Luncheon will then be served in the basement of the new pattern shop, and at 5.30 p.m. a special train will leave for Union Station, Pittsburgh.

Trade Publications.

Pipe Prices.—Thomas F. Cushing Company, 451 West 125th street, New York City. Folder. Gives current discounts in New York City on merchant pipe, both black and galvanized. The discounts are likewise given on extra strong and double extra strong pipe.

Steel Folding Doors.—Ritter Folding Door Company, Cincinnati, Ohio. Catalogue No. 2, 6 x 9 in. Contains views of installations of the Ritter folding doors, which are generally constructed of No. 22 gauge corrugated galvanized steel. A number of large installations of these doors are shown.

Fireproofing Material.—National Fireproofing Company, Pittsburgh, Pa. Book, 13 x 14½ in. This is a handsome volume showing the various plants owned by this company. A short history of the growth of the corporation, which was organized in 1889, is included, together with a list of the officers of the company. The rest of the volume is taken up by excellent views of the company's several plants, together with brief descriptive matter. Some samples of construction work in which the company's material has been utilized are shown, and fireproof brick and tiling and sewer pipe are illustrated.

Friction Clutches.—Hill Clutch Company, Cleveland, Ohio. Pamphlet. Reproduces a paper entitled "Tests of Friction Clutches for Power Transmission," which was presented at a meeting of the American Society of Mechanical Engineers by Prof. R. G. Dukes of Cleveland, Ohio. The Hill clutch is explained in this paper and its application is illustrated with the aid of line drawings. Some of the company's productions in the way of gears, pulleys, steel shafting, &c., are shown.

Concrete Mixers.—Svenson-Shuman Machine Company, Bessemer Building, Pittsburgh, Pa. Catalogue, 5½ x 8 in., 31 pages. Shows a proportioning concrete mixer which measures and mixes automatically. The machine has three hoppers which contain respectively stone, sand and cement, and by means of gates the amount of material they feed to the mixer can be regulated. There are only five running parts on the machine, which include a screw conveyor to which the material is fed and which carries it to a main shaft fitted with paddles which perform the mixing operation; a large gear, a friction clutch and a jaw clutch complete the running parts. The machine is simple and strong and has the advantage of mixing the material in plain sight and can be very easily taken apart and cleaned.

Lathe Tools, Boring Tools, &c.—Krieger Tool Mfg. Company, 83-91 West Randolph street, Chicago, Ill. Booklet. A boring bar holder in which various lathe tools are interchangeable is illustrated and described and an interchangeable set of tools is also shown (illustrated in *The Iron Age* November 5, 1908). A combination hollow boring bar used with these holders is also described as furnished in sets for engine lathes and ordinary forged lathe and planer tools, a gauge for grinding inside and outside threading tools, described in *The Iron Age* January 21, 1909; a high speed steel hardening stand, described December 31, 1908; multiple cutter forming bars and other equipment.

Coal and Ash Handling Machinery.—Jeffrey Mfg. Company, Columbus, Ohio. Catalogue 32-A, 6 x 9 in., 72 pages. Gives a profusion of views of typical installations of Jeffrey coal and ash handling equipment, including pivoted bucket carriers, flight conveyors, crushers, bucket loaders, coal bunkers and spouts to stokers, ash bins, &c. Some installations are illustrated by sectional drawings. Considerable space is given to a large installation in the plant of the Dayton Gas Light & Coke Company. Plants equipped include breweries, public buildings, worsted mills and factories of various kinds. A description is also given of rubber belt conveyors, grab buckets, cold storage plants, coal elevators, &c.

Riveting Machinery.—Chester B. Albree Iron Works Company, Allegheny, Pa. Catalogue No. 10. Size, 6 x 9 in., 90 pages. Some interesting figures on the power cost of pneumatic riveters as compared with hydraulic riveters is given, and a general description of the company's line of riveters follows, together with illustrations of a number of standard machines. Several compression riveters are shown in connection with the Albree universal bail, which, fastening at the center of gravity allows hanging in any position. Portable boiler riveters, bridge riveters, column riveters and track riveters are shown, and useful tables of pressure on rivets and other information on rivets and riveting is given.

Propellers, Reverse Gears and Marine Hardware.—Michigan Wheel Company, Grand Rapids, Mich. Catalogue H. Size, 6 x 9 in., 54 pages. Reverse gears for power boats and propeller wheels, a number of types of which are especially designed for speed, are shown, together with a complete line of marine hardware, such as steering wheels, couplings and bearings, blocks and tackle, &c.

Electrical Equipment.—General Electric Company, Schenectady, N. Y. Three bulletins. No. 4646 describes tungsten incandescent lamps, No. 4647 shows tungsten lamps for street lighting, and No. 4649 treats of the relative advantages and disadvantages of independent drives and group drives of machine tools, and treats particularly of the use of such equipment in railroad shops.

Vanadium.—American Vanadium Company, Pittsburgh, Pa. Two booklets. One deals with the use of vanadium in spring steel, and was written by W. L. Turner, an engineer for the company. The second booklet, entitled "Vanadium in Cast Iron," is by J. Kent Smith, and advocates the use of vanadium in cast iron and gives the results of some tests.

Lathes.—The Miami Valley Machine Tool Company, Dayton, Ohio. Folder. Shows a 15-in. standard engine lathe recently added to the company's line (illustrated in *The Iron Age* March 11, 1909). This lathe has an actual swing of 16½ in. over the bed. All of its parts being made from jigs are interchangeable.

Air and Gas Compressors.—Ingersoll-Rand Company, New York. Catalogue H36, 6 x 9 in., 64 pages. Describes the company's class H-1 air compressors with simple duplex steam and air cylinders and a class H-4 air compressor with compound steam and duplex air cylinders. Sectional views of standard compressors are scattered through the descriptive pages to illustrate the details. A machine especially designed for high pressures is shown, and standard machines are listed according to their sizes.

Car Trucks.—Bettendorf Axle Company, Davenport, Iowa. Book, 7 x 10½ in., 14 pages. This is a book of jingles illustrated in colors relating to the experience of a superintendent of motive power in visiting the shop of the "Bettendorf Bears," and it tells the story of the Bettendorf truck in Mother Goose style.

Heavy Metal Stamping.—Avery Stamping Company, Cleveland, Ohio. Circular. Illustrates some of the heavy stampings made by the company, as heavy tinned steel soda tanks, steel cylinder heads, boiler heads, griddles, steel kettles, pots, &c.

Excavating Buckets.—Wellman-Seaver-Morgan Company. Cleveland, Ohio. Catalogue, 6 x 9 in., 20 pages. Shows the Hulett patent excavating bucket specially designed for digging into iron ore, clay, broken limestone and other heavy and obstinate materials. An installation of this bucket at the plant of the Lackawanna Steel Company, Buffalo, N. Y., is shown, and it is described with the aid of sectional drawings. Brief mention is made of drag buckets, orange peel buckets, clam shell buckets and dumping tubs.

Steam Engines and Sawmills.—Enterprise Mfg. Company, Columbiana, Ohio. Catalogue, 6 x 9 in., 96 pages. Treats particularly of sawmill machinery. High pressure automatic pump engines are illustrated in a number of types and unassembled parts are shown. Stationary boilers for use in mills are illustrated with the aid of sectional views and diagrams and the company's Buckeye sawmills in a number of sizes and types are shown. Gang edger, self-feeding bolters, lath mills, conveying equipment, &c., are illustrated and listed.

Grinding Wheels and Grinding Machinery.—Norton Company, Worcester, Mass. Catalogue, 6 x 9 in., 167 pages. Covers nearly everything in the way of grinding equipment. As a preface to the volume there is an interesting description of alundum, which is an electric furnace product used as an abrasive in the manufacture of Norton grinding wheels. Views showing the process of the manufacture of this material are given, and there follows a description of vitrified wheels, silicate wheels, elastic wheels, &c., and their manufacture is illustrated with views of the company's plant. Various shapes of wheels designed for use on different makes of grinding machines are shown, and a number of Norton grinding machines are illustrated. Some useful tables of grinding wheel speeds are included, and the book is carefully indexed.

Direct Current Generators and Fan Motors.—Fort Wayne Electric Works, Fort Wayne, Ind. Two bulletins. No. 1113 describes the type M L three-bearing belted direct current generators, with balance wheels, which are built to supply the demand for a good machine in isolated or individual plants of small capacity where the prime mover is an internal combustion engine or other source of power which may be slightly irregular in speed. The machine is shown assembled and the more important parts are illustrated separately. Bulletin No. 1114 treats of desk fans, fan systems for restaurant and hotel dining rooms, and ventilating fans. An index to bulletins Nos. 1001 to 1113 accompanies the matter.

Steel Centers for Concrete Sewer Construction.—Blaw Collapsible Steel Centering Company, Westinghouse Building, Pittsburgh, Pa. Bulletin 37. Gives illustrations of an installation of the Blaw centers in the Indianapolis sewer system.

Centrifugal Pumps.—D'Olier Engineering Company, Philadelphia, Pa. Catalogue T, 7 x 10 in., 46 pages. Several types of centrifugal pumps are shown, including a three-stage turbine pump direct connected to an electric motor, and a double suction electrically driven pump especially suitable for handling large quantities of water at low head. A single suction single-stage volute pump directly connected to an electric motor, and other pumping machines are also shown. Several installations of mine pumps are illustrated, and some space is devoted to the use of pumps for irrigation.

Portable Tools for Railroad Repair Shops.—H. B. Underwood & Co., Philadelphia, Pa. Catalogue, 6 x 9¼ in., 72 pages, and circular. A portable universal boring, turning and

facing machine, portable pipe bending machine, portable boring bar for cylinder and general work, and other portable boring equipment is shown, together with special equipment for working on locomotives, including a circular planer tool for locomotive boxes, a portable valve seat rotary planing machine, portable milling machines and similar equipment. The volume is well illustrated and thoroughly indexed. The circular shows a rotary flue cleaning machine designed for cleaning boiler flues.

Blast Furnaces.—William B. Pollock Company, Youngstown, Ohio. Supplement No. 13 to the company's general book of views of notable blast furnaces it has constructed. This number contains general photographs of furnaces Nos. 1, 2, 3, 4, 5 and 6 of the Ohio Steel Works and blast furnaces of the Carnegie Steel Company.

Chucks. — Skinner Chuck Company, New Britain, Conn. Folder. Lists various sizes of the Skinner two-jaw chucks and shows a special chuck designed for holding odd shaped pieces which is especially adaptable for brass work.

Valves.—Nelson Valve Company, Wyndmoor, Philadelphia, Pa. Catalogue, 6½ x 9½ in., 220 pages. This is a well illustrated, cloth-bound volume showing the company's line of valves, which include combination globe and angle valves, cup check valves, &c., up to the heaviest styles of gate valves operated by gearing. Hydraulically and electrically operated gate valves are also shown, and a complete line of valve accessories and fittings is illustrated. Directions for ordering are given, together with the company's especially complete telegraph code.

Pile Driving Machinery.—Vulcan Iron Works, 28 North Irving avenue, Chicago, Ill. Catalogue No. 31, 5 x 6¾ in., 60 pages. Contractors' pile drivers, which are made by the company in 11 different styles, are shown with the aid of outline drawings. These machines range in size from machines for driving fence posts to the heaviest kind of pile drivers. Repair parts are shown, and a pile saw arbor for cutting off piles under water is illustrated.

Revolving Oilstone and Grinder.—Mummert, Wolf & Dixon Company, Hanover, Pa. Booklet. This is a brief discussion on molecules, atoms, electrons and electricity, and incidentally it shows a combined oilstone and grinder. This machine has two oilstone wheels, one of which is coarse and takes the place of an ordinary grindstone, and the other is fine and is used as a whetstone. There is also a leather or stropping wheel, an emery cone and an emery wheel on the machine. This machine was illustrated in *The Iron Age*, October 29, 1908.

Labor Notes.

A Harrisburg, Pa., dispatch reports a 10 per cent. reduction in wages by the Harrisburg Pipe & Pipe Bending Company.

The Cambria Steel Company has made the following announcement at Johnstown, Pa.: "On account of the recent sharp decline in the market prices of the company's products following the long continued business depression, it becomes necessary to announce a reduction in salaries and wages averaging 10 per cent., to take effect on and after April 1, 1909." The reduction affects all salaries and wage schedules.

The Carpenter Steel Company, Reading, Pa., posted notices March 23 of a reduction of 10 per cent. in wages. It will affect 700 men.

The American Iron & Steel Mfg. Company, Lebanon, Pa., posted notices this week that beginning Monday, April 5, puddlers will receive $3.75 a ton instead of $4.50.

At Danville, Pa., the Montour Rolling Mills have announced reductions in wages of 10 to 15 per cent. The new puddling rate is $3.75 a ton.

A Reading, Pa., dispatch says that a meeting of iron workers of the Eastern District, held in that city March 21, decided to refuse the reduction in wages recently proposed by the Reading Iron Company. The puddling rate in the new schedule is $3.75 against $4.50. The decision of the employees was presented to the company by a committee March 23.

The wages of employees at the mill of the Hazleton Sheet Steel Company, Hazleton, Pa., have been reduced 10 per cent., while some workers are reduced more than this. The management has announced that in view of market conditions the plant must be shut down if the new rates are not accepted.

At Conshohocken, Pa., reductions in wages were made recently at the Alan Wood Iron & Steel Company, Longmead Iron Company and J. Wood & Brothers Company plants. The general cut of 10 per cent. is reported to be satisfactory to the men, but there was a protest against the reduction of puddlers from $4.50 to $3.50 a ton, and efforts have been made for a compromise.

PERSONAL.

Robert Thurston Kent has resigned as engineering editor of the *Iron Trade Review*, Cleveland, Ohio, to become managing editor of *Industrial Engineering*, Pittsburgh, Pa., a new paper devoted to mechanical engineering subjects.

James Acton Miller has severed his connections with the Standard Metalwork Company, Thompsonville, Conn., where he has been making a specialty of automobile headers and other tube parts, and expects to engage in a similar business near Newark, N. J., in the immediate future with largely increased facilities.

P. A. Schmitz of the Walzmachinenfabrik, Duesseldorf, Germany, who has been visiting manufacturers in this country, sailed March 23 for Europe.

E. W. Pittman, formerly chief engineer of the Pittsburgh Steel Construction Company, has been appointed contracting engineer for the McClintic-Marshall Construction Company in charge of territory in the vicinity of St. Louis, effective March 1.

Max Rotter, chief engineer of the Allis-Chalmers Company's steam turbine department, will deliver a lecture March 25 on low pressure steam turbines before the Engineering Society at West Allis, Wis.

The Hammond-Byrd Company, Birmingham, Ala., announces the return of Horace Hammond, who has been absent some five months.

OBITUARY.

JAMES SEVILLE, who recently died in Minneapolis, Minn., was one of the founders of the famous Reliance Works at Milwaukee, Wis., which, dating from 1847, were conducted until 1860 under the firm name of Decker & Seville, being then sold to Edward P. Allis & Co. Later Mr. Seville removed to Duluth, where he established the National Iron Works, and subsequently retired from active business.

HENRY TIMKEN, president of the Timken Roller Bearing Axle Company, Canton, Ohio, died suddenly March 16, aged 76 years. He was formerly a resident of St. Louis, but for the past 20 years had resided in San Diego, Cal.

ROBERT TARRANT, president of the Tarrant Foundry Company, Chicago, died March 19, after a lingering illness. He was born in the State of New York in 1832. In 1856 he went to Chicago, with whose enterprises in mechanical lines he has been identified for many years. He leaves a widow and one son.

WILLIAM P. HENSZEY, one of the partners in the Baldwin Locomotive Works, Philadelphia, died March 23, aged 76 years. He was born in that city, studied mechanical engineering, and in 1859 entered the Baldwin shops as engineer and draftsman. In 1870 he was admitted to the firm. In his half century with the works he had charge of the designing of locomotives. He leaves a widow and a daughter.

Bethlehem Sections for the Gimbel Building.—The contract for the steel construction of the Gimbel Building, on Sixth avenue, between Thirty-second and Thirty-third streets, New York, has been awarded to the Bethlehem Steel Company. About 12,000 tons of Bethlehem sections will be required. The fabricating will be done by the receivers of Milliken Brothers, Inc. A large part of the steel will be 15-in. 46-lb. Bethlehem beams, equivalent to standard sections of 50 to 55 lb. All the columns will be the Bethlehem H section. The new building will have twelve stories, taking up the entire frontage of 200 ft. on the west side of Sixth avenue, between Thirty-second and Thirty-third streets, and having a frontage of 400 ft. on each of the latter streets. It will be occupied as a department store.

The Machinery Trade.

NEW YORK, March 24, 1909.

There is no appreciable betterment in the demand for machinery except in a few special classes which seem to have not been so affected by the dullness in general business, and these latter—sugar mill and ice making machinery—are in good demand. The activity in these branches of trade is having a favorable effect upon power equipment, of which a great deal is used in both sugar mills and ice making plants. The machine tool houses are somewhat encouraged by the fair sized list of tools issued by the Maxwell-Briscoe Motor Company and by the purchases of the New York Edison Company. The report that the New York Central Railroad intends to increase its proposed expenditures for equipment this year to $11,000,000 has helped to create a more optimistic feeling. It had been hoped that the announced large purchases of the New York Central Railroad would be followed by substantial purchases by other roads, but thus far they have not come into the market. Inquiries and orders the past week changed but little in either volume or character, covering mostly single and small lots of tools. Houses are again complaining of the difficulty in making collections.

The most encouraging outlook for the machinery trade at present is in the demand for sugar making equipment from Cuba, which is especially heavy just now. At this time of the year estimates can be made on the outlook for the annual crop, and those in touch with the situation say that never before in the history of that industry on the island has the prospect for a record breaking crop been so bright. This will mean that the sugar plantation and the sugar factory people in Cuba will have plenty of money to spend, and already the trade is hearing from them. The buying that has been done so far this spring exceeds that of the entire season of 1908, and a number of prominent machinery men are now in Cuba looking for business or arranging details for delivering orders.

Sir William Van Horn, president of the Cuba company which controls railroads in the Nipe Bay section of the island, is in Cuba at present going over the situation with a view to arranging for extensions to sugar plantations and sugar factories which are controlled by the Cuban-American Sugar Company, in which he is heavily interested. One of the largest of these plantations is the Jati Bonico Centrale, which is one of the largest sugar factories there. According to present plans, the Cuban-American Sugar Company will at least duplicate this plant with another, and, perhaps, if the outlook continues as promising as it now seems, the company will build the most up to date and largest raw sugar plant in the world.

Among the orders recently placed by Cuban interests was one given by the Senado Sugar Company of Minas to the Krajewski-Pesant Company, 21 State street, New York. This order includes a nine-roller mill and crushers, the rolls to be 34 x 84 in., with a Krajewski crusher, 30 x 84 in. The company will also furnish a full set of hydraulics, three Corliss engines, to be, respectively, 30 x 60, 24 x 48 and 22 x 42 in., in addition to a 16-ton traveling crane.

The Fajardo Sugar Company of Fajardo, Porto Rico, has placed an order with the Farrel Foundry & Machine Company, Ansonia, Conn., for a four-roll mill and crusher, 34 x 78 in. The crusher will be an especially fine one and will have all cut gearings. The Fajardo Company has also ordered three Harris-Corliss engines, four Babcock & Wilcox water tube boilers and some vacuum pans and quadruple effects, the latter to be furnished by Joseph Oat & Son. It is expected that more business will be placed shortly from similar sources in Cuba and Porto Rico and American manufacturers have hopes of getting a majority of the business. The growers have been able to make better terms as to delivery than they have during the last few years, and in consequence German and English manufacturers, who heretofore landed a good slice of the sugar business, are getting by no means as much business as in other years.

Maxwell-Briscoe Motor Company's Machinery Requirements.

The Maxwell-Briscoe Motor Company, which recently acquired the plant of the Ingersoll-Rand Company, at Tarrytown, N. Y., and which last week advertised through its purchasing department for a large amount of material to be used in manufacturing, has a list of machines out on which the trade in this vicinity is bidding, which will include a general line of machine tools aggregating an expenditure of probably $25,000. This machinery, it is understood, will be installed in the Rand plant, and it is probable that it does not include all of the company's intended expenditures in that line. The Rand plant includes a main machine shop, 60 x 200 ft., and three other buildings nearly as large which are available for general manufacturing. The company probably has sufficient power to operate its plant, and it has moved some of its equipment in the existing old Tarrytown plant to the Rand plant.

The New York Edison Company has closed for its list of machine tools on which it received bids the last few weeks. This equipment was for distribution among the company's machine shops at its different plants and the expenditures amounted, it is understood, to about $12,000. One prominent Liberty street machine tool house, it is said, secured the bulk of the business.

The International Harvester Company is planning to build two large manufacturing plants in Europe to make harvesting machinery. Sites for these plants have been selected, and one of them is to be located at Lille, France, in the Province of Croix, near the Belgian border. Another plant will be erected in the well-known German manufacturing center of Duesseldorf. As has been the case with a number of other American manufacturing companies of late, the International Harvester Company has decided that it will be cheaper to build its equipment in Europe than to construct it here and pay the tariff imposed upon agricultural machinery. It is said that all the raw material needed in making the machinery is obtainable adjacent to the points selected for the two plants. Just how large the plants are to be has not been announced as yet, but it is stated that figures which have been published announcing how much the company expects to spend on the manufacturies have been somewhat exaggerated.

The Frontier Iron Works, Buffalo, N. Y., has closed the purchase of the tract of land on Letchworth street and the New York Central Railroad, upon which it is to erect a new plant. Five buildings are to be erected; one, 90 x 240 ft.; one, 40 x 125 ft.; one, 60 x 100 ft.; one, 28 x 120 ft., and an office building, 40 ft. square. Construction work will be started next month, and it is hoped that the new buildings will be ready for occupancy in July. As soon as they are completed the company will move its present plant into the new buildings, which will increase the capacity about 50 per cent.

C. Arthur Benjamin, 109 State street, Syracuse, N. Y., sales agent for the Packard, Elmore and E. M. S.-30 cars, has signed a lease with Elmer E. Mathews by which the latter is to erect a two-story fireproof concrete and steel garage and machine shop, 50 x 224 ft., at 410 West Onondaga street. The machine shop will be equipped with motor drive and a complete line of tools and machinery for repairing and assembling automobiles, including lathes, drill presses, grinding machinery, emery wheels and other tools. Mr. Benjamin will be in the market for machinery about May 1. The National Construction Company, Rosenbloom Building, has been awarded contract for the steel work.

The American District Steam Company, Charles R. Bishop, general manager, North Tonawanda, N. Y., has called a meeting of the stockholders to be held April 13 for the purpose of approving the revised plans for the construction of a new machine shop, two stories, 52 x 262 ft. Following the dstruction of the plant by fire last fall, the company awarded contracts for the construction of several buildings, among which was a new pipe mill and a new foundry building, which are now nearing completion and will be ready to start operation within the next couple of weeks. Bids will be invited on the new machine shop following the meeting of the directors.

Plans are now out for the new repair shops to be erected at Lyons, N. Y., for the New York Central Railroad. The plans call for a main building, two stories, 40 x 300 ft.; mill and machine shop building, one story, 40 x 100 ft.; storeroom building, 40 x 70 ft.; blacksmith shop, 30 x 40 ft.; airbrake and pipe shop, 20 x 40 ft.; and office building, 30 x 40 ft. The plant will be equipped with an air compressor of 500 cu. ft. capacity and a complete line of woodworking and ironworking machinery. The company will use electric power, but has not determined as to purchasing current or installing its own plant.

The New York & New England Cement & Lime Company, recently incorporated with a capital stock of $3,000,000, is controlled by interests closely allied to the Atlas Portland Cement Company, which operates several plants with a combined output of 40,000 bbl. a day. The new company is erecting a 6000-bbl. Portland cement plant on the west bank of the Hudson River at Hudson, N. Y., which will have the advantages of deep water transportation and direct railroad connection with the New York Central and Boston & Albany railroads. J. Rogers Maxwell, New York, is president, and H. J. Seaman, Northampton, Pa., is general superintendent.

The Minnesota & Ontario Power Company has, through its offices in Minneapolis, placed orders for the equipment for its large hydro-electric plant being constructed at International Falls, Minn., by J. G. White & Co. The plant will at first develop about 20,000 hp., and it is probable that another unit will be added later on. The power will be utilized to run a large paper mill and other factory enterprises. The paper mill, which is now in course of construction, is expected to be ready for operation by January 1. It will be equipped to turn out about 200 tons of paper a day. A large order for structural steel for this plant is now pending,

and work is already under way on a large pulp mill. This company was organized some time ago with a capital stock of $7,000,000 by a number of capitalists headed by Edward W. Backus and William F. Brooks of Minneapolis. The company owns its own lumber properties and has other enterprises in contemplation in addition to those now under way.

There will be some rather extensive machinery purchases for a large department store to be erected by Gimbel Brothers, who now own stores in Philadelphia, at Greeley square and Thirty-second street, New York, of which D. A. Burnham & Co. are the architects. The general contract for the structure has been awarded to the Thompson-Starrett Company, New York, which will probably have charge of the machinery purchasing which will come up later on. The plans include the installation of 41 passenger elevators and six freight elevators, and this will necessitate the installation of considerable power equipment, some hydraulic machinery, an elaborate vacuum cleaning system, perhaps, stokers and similar accessories.

Plans and specifications for the improvement of sections of the Erie Barge Canal, involving an expenditure of about $10,000,000, have been submitted to the Advisory Board of Consulting Engineers for approval. The work, which will probably be advertised as soon as it has been approved by the authorities, includes contract No. 20, dredging a canal on the Mohawk River between Little Falls and Rexford Flats, 5 miles; No. 23, constructing the land line from King's Bend to the Genesee River, 5 miles; No. 30, constructing the river and land line from Little Falls to Sterling Creek, 14 miles, and No. 42, construction of the canal from the Herkimer-Oneida county line to Oriskeny Road, 8 miles.

Business Changes.

S. & C. Wardlow, manufacturers of the Wardlow high speed steel and other brands in bars, sheets and coils, with plants at Sheffield and Oughtibridge, England, have removed their New York headquarters from 95 John street to 278 Pearl street, at which address they some time ago purchased a five-story building.

The Wagner Electric Mfg. Company announces the removal of its Pittsburgh office to the Lewis Block and the appointment of Ludwig Hommel as manager.

Felix F. Wiener, 50 Church street, New York, has been appointed sole agent for the S. & M. heavy duty beam shears, which were formerly handled by the International Electric & Engineering Company. Mr. Wiener reports better inquiry and has shipped a 12-in. beam shear, with punching, coping and cutting attachment, to the American Iron Works, Boston, Mass.

Catalogues Wanted.—Gustav Voightmann, Kontstrasse 14, Charlottenburg II, Germany, desires catalogues, &c., of special machinery for foundry work and for the manufacture of agricultural machinery and special tools for the latter. Mr. Voightmann wishes to represent in Germany a good manufacturer of molding machines.

Cincinnati Machinery Market.

CINCINNATI, OHIO, March 23, 1909.

Within the past six or eight days nearly all the larger manufacturers of machine tools have noticed a more cheerful tone in correspondence, and some excellent orders have come in for early shipment. This better condition of affairs has been the experience largely of the milling machine, drill and lathe manufacturers. Interest in shapers has scarcely kept pace with that for the tools named, although one company whose output for many years has been largely exported notes a better inquiry from abroad, which means that there is some inquiry, for there has been little or nothing doing for many weeks. The Central West is thickly studded with automobile manufacturing establishments, and it is from these that the tool manufacturers mentioned are enjoying the greater part of their patronage at present. One of the largest interests in the country making milling machines, located here, reports that it is behind some 30 days on deliveries of two large special types which are going to the automobile manufacturers. This same company notes an improvement in foreign inquiry, and the reports of its foreign agents indicate that the situation abroad is improving rapidly.

Smith & Mills, manufacturers of shapers, suffered a loss of about $1000 in the fire of a few days ago which destroyed the Vulcan Foundry. The loss was in core boxes, which was of sufficient extent to cause a temporary shutdown of their plant last week. The Cincinnati Lathe & Tool Company also suffered a loss of some patterns and core boxes in the same fire. President Heindel of this company states that business has improved steadily, showing an improvement of 15 per cent. over last month and now running about 60 per cent. of normal.

Members of the Cincinnati Metal Trades Association expect to attend the meeting of the national organization in New York next month in force, and will doubtless have a special train. An invitation to stop off en route and visit some of the large plants in Syracuse, N. Y., has been received by Secretary Manley.

The National Sheet Steel Company, Mansfield, Ohio, manufacturer of open hearth steel and iron sheets, announces that it will have its plant in full operation some time this week. The largest part of the output will consist of polished and blued steel manufactured under patents held by President and Treasurer W. M. Blecker. Other officers are W. A. Neal, vice-president; G. A. Lindoerfer, secretary and assistant treasurer, and G. A. Miller, general superintendent.

Fire practically destroyed the brass and aluminum foundry of F. Bednarowisz in South Bend, Ind., recently. The loss has been figured as total.

Anticipating its final dissolution as a corporation, the Stoddardt Mfg. Company, Dayton, Ohio, has reduced its capital stock from $500,000 to $50,000. The business of the company was taken over five years ago by the Dayton Motor Car Company, but the Stoddardt Company owns a part of the property operated by the latter corporation, which necessitates the maintenance of a separate organization.

The Ralston Steel Car Company, Columbus, Ohio, is enjoying a nice run of orders for mining and other special types of cars. The officials are also anticipating some good business for the patent steel underframe which has found considerable favor with some of the important roads of the country.

The Fort Wayne Engineering & Mfg. Company, Fort Wayne, Ind., is a new enterprise which starts off with excellent prospects. The company has installed 10 new machines, which include drill presses, lathes, planers and milling machines, in space secured from the Paul Pulley Company, and will manufacture an electrically operated air compressor designed especially for use in garages and an electrically operated water pump for domestic use and for buildings not otherwise provided with means for hoisting water. The new ideas are inventions of an official of the company.

The outlook with dealers in machinery and machine tools in the Central West is, generally speaking, encouraging. Since the first of the year business with dealers, save for some special types of machinery, has been lagging. While it may not be said that dealers are as yet stocking up, the tone of correspondence is distinctly more cheerful, and manufacturers of tools and kindred lines in this territory believe that it is but a question of a few months when orders will be coming in from all directions. The foundries have not as yet found much reason for encouragement. The melt is running along about the same, averaging three heats per week.

In power equipment dealers and sales agents report a little better tone, especially in the electric line, medium and small sized generators and motors being in good demand.

Ice machine manufacturers are still keeping up their phenomenal runs. One of these will within a year be installed in a fine new plant in the Oakley District of Cincinnati, employing its full force on orders which have come in since the first of the year.

The automatic spur gear cutting machine business heretofore conducted by the Cincinnati Shaper Company, Cincinnati, Ohio, has been transferred to the Cincinnati Gear Cutting Machine Company, which in the future will manufacture this line of machine tools.

New England Machinery Market.

BOSTON, MASS., March 23, 1909.

The machine tool dealers have had rather a better week; orders running small, but in somewhat greater number than earlier in the month. Some of the large manufacturing plants which are their customers are busier than they have been. Such works as those of the Draper Company, Hopedale, Mass.; Crompton & Knowles Loom Works, Worcester, Mass., and Whitin Machine Works, Whitinsville, Mass., builders of textile machinery, and the United Shoe Machinery Company, Beverly, Mass., have increased production. The steel trade has shown no symptoms of responding to the reduction in prices, though certain of the tool steel people report business a little better. However, the change is but slight. There are reports of larger building operations, involving increased demand for structural shapes.

Central Massachusetts has suffered serious loss by fire during the week. March 17 the plant of the D. M. Dillon Steam Boiler Works, Fitchburg, Mass., was the scene of a fire which caused a loss of $50,000. However, the damage was not nearly so serious as indicated by the press dispatches, the machine shop, the power plant, blacksmith shop, pattern house, tube houses and office escaping. A part of the main shop and the ells were burned, causing considerable loss in equipment, the cranes being badly damaged. The company will rebuild at once on a larger scale, and expects to be turning out its regular product in June. The plans include special preparations for the manufacture of high pressure boilers in large units.

Other serious fires were those of the Wright Wire Company, Worcester, Mass., which suffered a loss of $100,000 at its Worcester works, and another of $40,000 at Palmer, Mass., where the rope mill was destroyed. At Worcester the machine shop was wet down, and shafting and belting were destroyed. It is not known what proportion of the machine tools were seriously affected, but all mill supplies were rendered valueless. The boiler shop was badly damaged. One boiler may be saved, but it is expected that the other will have to be replaced, and possibly both have been damaged past repair. The engine was saved. A considerable amount of wire weaving and rope making machinery was burned in the two fires, and will have to be replaced. The company manufactures its own machinery, and the demand upon its machine shops may have its influence in replacing the present equipment.

The list of tools sent out by H. L. Gilman, 32 Linden street, Brookline, Mass., includes a heavy universal milling machine; 30-in. planer; 30 or 42 in. boring mill; engine lathe, about 30-in, to take 25-ft. centers; four engine lathes, 14-in. to 36-in.; 30-in. and 4-ft. radials; 28-in. drill press, with tapping attachment; 24-in. shaper; 20-in. manufacturer's drill; two truret lathes; 3-in. and 8-in. pipe threading machines; 1½-in. and 3-in. bolt cutters; small punches and shears, and woodworking machinery for carpenter shop. Mr. Gilman has plans for great industrial buildings at Boston, in connection with which it is proposed to establish a large machine shop.

The Lundin Steel Casting Company, Chelsea, Mass., has begun the erection of a new steel foundry at Neponset, Mass., near the Pope Hill railroad station. The building will be 50 x 100 ft., with ell at one end, where the offices will be located. The company now manufactures crucible steel castings and will continue this line, but plans to instal a 2-ton open hearth plant later. An electric traveling crane of about 5-ton capacity will be purchased after a while. The new foundry will be operated by gas engine, and compressor abrasive wheel stands, rattling barrels, &c., will be purchased. The Chelsea foundry, at Clark and Webster avenues, will be continued, to take care of local trade.

The Flather Foundry Company, Nashua, N. H., has made extensive improvements to its foundry, which was badly damaged by fire early in the year. An ell for the cupolas gives 25 per cent. more floor space, and light and ventilation have been vastly increased by a monitor extending the length of the building. An additional cupola of about 8-tons capacity has been installed, together with a 10-ton Whiting jib crane. The foundry will be in operation again shortly.

Thomas Murray, Box 592, New Britain, Conn., has taken the lease of the needle shop building, in that city, which is equipped as a brass foundry.

The International Silver Company, Meriden, Conn., is to build an addition to its Factory H, in that city. The building will be 50 x 75 ft., one story, and will be used for grinding and polishing for the cutlery department.

Worcester is anticipating a very representative attendance at the industrial exposition to be held there next week. Some of the local manufacturers have invited customers to be present, and there are many acceptances, assuring the presence of many interested manufacturers. It is confidently expected that the show will be a success, and will establish itself as an annual institution.

Buck Bros., Princeton, Mass., chair manufacturers, have purchased what is known as the Pottery Building, Sterling, Mass., and will equip it for finishing the product of the Princeton factory.

The Spencer Wire Company, Worcester, Mass., has awarded the contract for another manufacturing building, which will be located on the westerly side of Webster street, near the new office building. It will be 120 x 135 ft., three stories, of brick, mill construction, and will be used for general manufacturing purposes. The machinery will operate by electric power, and the company will be in the market for the necessary electric equipment later. The company is also increasing its machine shop equipment. Some tools have just been purchased, and it is proposed to buy still others in the immediate future. The requirements are for a miscellaneous lot of tools, no list of which is available. The growth of the business has been rapid, and as the company builds most of its own machinery enlarged machine shop capacity has become necessary. The announcement was recently made of a new factory building, 50 x 240 ft., four stories, in which space will be given to the machine shop. A new tempering building is 120 x 150 ft., and a large power plant is well on toward completion.

Harvey Hubbell, Inc., Bridgeport, Conn., manufacturer of machine tools, machine screws and electrical specialties, has awarded the contract for a new factory building, which will be located on State street, between Bostwick avenue and Mt. Grove street. It will be a five-story building, 65 x 165 ft., of reinforced concrete.

The Wire Goods Company, Worcester, Mass., manufacturer of wire goods, will erect a new factory building in the rear of its present buildings to be 60 x 80 ft. and six stories, of brick, mill construction. The purpose is to give space for rearranging various departments, so that manufacturing can be done more economically, and to provide for future growth. When the building is done the company will have 110,000 sq. ft. of floor space.

It is announced from Mystic, Conn., that Reed & King, Bath, Maine, will establish a shipyard in that place, at what is known as the old Box Company plant.

J. E. Snyder & Son, Worcester, Mass., have added to their line a 21-in. upright drill, filling a place between their 20 and 23 in. sizes. It is a powerful machine, without back gears, and is furnished with automatic stop. It is designed to drill 1¾-in. holes through cast iron and 1⅞-in. holes through machinery steel.

The Climax Company, Hyannis, Mass., allusion to which has been made in this column, is a Massachusetts corporation, of which Eben S. S. Keith is president; Charles W. Clapp, treasurer, and W. Veazie, secretary. Mr. Keith is the president of the Keith Car Company, Sagamore, Mass., and the other two officers are connected with the same company. The Climax Company will manufacture a new centering machine, which was described with illustrations in *The Iron Age* of March 18, a new paint burner and other products.

Among the announced improvements to general manufacturing industries are those of the Haitsch Hat Company, Danbury, Conn., which will build additions to four of its buildings; the Brightwood Mfg. Company, North Andover, Mass., which will build a new mill, 80 x 250 ft., and two stories; the Case Leather Board Works, Hop River, Conn., which will replace the mill recently burned by a new structure. The Pacific Mills, Lawrence, Mass., textile manufacturer, has purchased a tract of land in that city upon which it is proposed to erect large works, though no definite plans have been made.

Chicago Machinery Market.

CHICAGO, ILL., March 23, 1909.

Trade in practically all machinery lines continues to reflect the waiting attitude observed in the manufacturing industries, where expansion is being retarded by the disturbing effects of tariff agitation and anticipated readjustments of wage scales. It is plainly evident that until the demand for manufactured goods, especially in iron and steel, increases sufficiently to engage a larger proportion of the productive capacity in shops and factories, there can be no substantial improvement in the demand for new machinery equipment. There are, of course, some imperative requirements for tools and machinery which must be met by immediate purchase, and these now constitute the bulk of the business. This restriction of purchases is doubtless holding back a considerable volume of business that will certainly come into the market as soon as the atmosphere of doubt is cleared away and confidence in the stability of values is again re-established.

The enterprises that are, perhaps, least affected by present conditions are the hydro-electric power developments in the West, the exploitation of which is employing a large amount of capital and energy. The future values of the cheap power thus developed are as a rule too certain of ultimate realization to be affected by a temporary depression of business, and for this reason capital is available for sound ventures of such character. The machine tool houses are booking only a moderate number of orders for single tools and small lots, with an occasional lot of machines for new shop equipment. Trade on the whole is very uneven, and competition for the business in sight is especially keen.

Improvements contemplated by the El Reno Foundry & Machine Company, El Reno, Okla., which include the construction of a new brick foundry building and machine shop, were hastened by a recent fire in the foundry department, which did considerable damage. The company manufactures a line of stoves, the demand for which has grown to such proportions that greater capacity is required. Included in the new equipment required are a new cupola with electric driven blower, electric traveling crane and some smaller appliances.

One of the most important manufacturing projects recently developed in the Northwest is embraced in the plans of the Dominion Improved Wire Fence & General Mfg. Company, Ltd., Winnipeg, which has been incorporated under the laws of Manitoba, Canada, with a capital stock of $750,000. The company is arranging to erect a large plant for the manufacture of wire and wire products. A building site of 20 acres of ground has been secured, and some of the buildings are already in course of construction. These will include foundry, machine shops and structures for the accommodation of rolling mill, wire drawing mill and wire fencing factory. It is expected that the plant will be completed in time to begin manufacturing August 1. The company is now in the market for the machinery equipment and is ready to consider propositions from manufacturers.

The Paris Foundry & Machine Works, Paris, Ill., and the Modern Concrete Machine Company, Terre Haute, Ind.,

have been merged and reorganized under the title of Modern Foundry & Machine Company, Paris, Ill., with a capital stock of $100,000. The lines manufactured by the Paris Company, consisting of agricultural machinery and gray iron castings, will be continued, to which will be added a cast iron welding process. Arrangements are being made to enlarge the present plant, and new machinery will be added in the molding room, machine shop, pattern shop and brick structural shop.

A new firm known as the F. H. Whipple Machinery Company has been established at Visalia, Cal., for the handling of pumping machinery and supplies. The head of the firm, F. H. Whipple, was formerly manager of the Price Pump Company of the same city.

The Matteson Mfg. Company, maker of modern machinery and tools for the sharpening and treatment of saws, has been reorganized and incorporated under the title of the Chicago Saw Sharpening Machinery Company. The officers are: R. C. Barr, president; A. D. Matteson, vice-president; C. H. Kellerman, treasurer; J. K. Chalmers, secretary.

The Pfannmueller Engineering Company, Chicago, dealer in new and second-hand machinery, has completed arrangements for the erection of a new machinery warehouse, 100 x 400 ft., of steel and concrete fireproof construction. It will be equipped with a Reliance electric 25-ton traveling crane of 50-ft. span, with a 6-ton auxiliary running the entire length of the building. It is planned to have the structure completed by July 1. In addition to the portion of the building occupied by the company, there will be a considerable space available for lease or rental to other machinery interests desiring machinery storage room.

The Rayado River Power Company, with headquarters at Cimarron, N. M., has been incorporated with a capital stock of $100,000, with a view to developing a 3000-hp. hydro-electric power plant on the Rayado River. The current generated will be distributed for power and lighting purposes to adjacent towns and coal mines. Plans for construction have not been fully developed, but it is stated that the enterprise has already been financed. The president of the company is George H. Webster of the Urraca Ranch, Cimarron, N. M.

Edgar B. Kay, dean of the department of engineering, University of Alabama, is preparing plans for a small water works plant at Faunsdale, Ala. There will be required ½ mile of cast iron pipe line, a 40-gal. steel tank on a steel tower, gasoline engine to drive triplex pump and a compressor, surface reservoir, fire hydrants, valves, &c. The same engineer is also preparing plans for the Choctawhatchee River Light & Power Company at Newton, Ala. This project includes the construction of a 25 x 30 ft. reinforced concrete dam, fishway, logway and power house, three vertical type direct connected turbine generators of 900 kw. capacity each; also exciter units and transmission line work. It is estimated that about 3000 hp. will be developed by this plant, the estimated cost of which is $75,000.

The Keystone Driller Company, Beaver Falls, Pa., will shortly remove its northwestern office from Plattville to the Monadnock Building, Chicago, but will retain its present warehouse at Plattville and will also have a representative to take care of the trade in that territory.

Milwaukee Machinery Market.

MILWAUKEE, WIS., March 23, 1909.

Machine tool builders in this State are, generally speaking, finding sales smaller than the number of inquiries recently made would lead them to expect. Nevertheless, the aggregate of business continues to increase, due partly to the fact that orders for more than a single tool at a time are growing in frequency. Equipments for foundries show the greatest gain, and labor saving appliances, as well as devices for eliminating or reducing waste, seem to be particularly sought. Among local establishments the recent depression has, in many instances, been of actual advantage, when viewed in the perspective of future years, for it has developed not only true methods of saving, but also greater efficiency than at any time heretofore. One has merely to walk through the yards and shops of any large plant to note the differences between the easy going attitude of former days and the strict attention now being paid to every detail of works economy, using that word in its most comprehensive sense. A notable example of this may be seen at the West Milwaukee locomotive and repair shops of the Chicago, Milwaukee & St. Paul Railroad, where the clean, tidy storage spaces, free from unused scrap, which have replaced the slovenly appearing yards of the old regime, are but an index of the improved conditions which have there taken place. In the industrial suburbs, West Allis, South Milwaukee, Cudahy and North Milwaukee, the change at the plants of the large machinery building companies has been almost equally marked, and, from the standpoint of actual shop efficiency, they were never in a better position than at the present time.

Extensions and improvements of various kinds are being actively undertaken at industrial plants all along the lake shore, as well as to a lesser degree in interior cities of Wisconsin, where smaller establishments are the rule.

The Badger Brass Company, Kenosha, has purchased a site adjoining its plant for an addition to be built in the near future, for which a complete line of new tools will probably be required.

The Standard Ground Key Works Company, Milwaukee, has decided to build a new foundry and install the latest appliances. This company, incorporated by Paul Jaeschke, Charles Kirchhahn and Alfred Jaeschke, succeeds one of similar name which has been operating a smaller plant than that now proposed.

The Wisconsin Motor Mfg. Company, which was recently formed by Chas. H. John, Edward Schwartzburg and Fred. C. Kuetemeyer, with an authorized capital of $50,000, has leased the North Milwaukee shops of the Milwaukee Locomotive Works, which was merged with the National Brake & Electric Company, and will install a full line of machinery for the manufacture of four-cylinder automobile engines.

Fred. Haehne, Kaukauna, Wis., is said to contemplate building an addition to his forging and machine shop.

James B. Worthington, Manitowoc, Wis., plans to establish a factory for building gas engines of an improved design, patent for which is pending. Local capitalists are interested with him.

A large steel gas holder and auxiliary apparatus will be erected by the Sheboygan Gas Company and so constructed as to obviate accidents such as that which wrecked the holder of the Milwaukee-Northern Railroad in the neighboring town of Port Washington.

The La Crosse Plow Company, La Crosse, Wis., finds itself compelled by the activity in its line to build a foundry adjacent to the shops. Work will probably start this summer or before.

The Metropolitan Electric Company, Reading, Pa., has ordered from Milwaukee builders three steam turbines and generators having an aggregate capacity of 18,000 hp.

The Lemke-Briggs Electric Company of this city reports a rapidly increasing business in automobile supplies.

The Fred. M. Prescott Steam Pump Company, Milwaukee, has been awarded contract for a horizontal crank and flywheel pumping engine of 2,000,000 gal. capacity daily, to be installed by the city of Spartanburg, S. C.

The National Brake & Electric Company of this city has received an order from the Rochester & Manitou Railroad, Charlotte, N. Y., for nine air brake equipments, and the New Hampshire Electric Railroad, Haverhill, Mass., has purchased 12.

R. D. Tomlinson, inventor of the steam condenser bearing his name, which was first installed in the Manhattan power station, New York, has been giving a series of well attended lectures before engineering societies in New England cities.

The Filer & Stowell Company has now in active operation, south of Stowell Station, the new foundry built to replace the structure which was condemned because of being in the right of way of the Chicago & Milwaukee Railroad.

The Jacob J. Vollrath Mfg. Company, Sheboygan, Wis., which claims to be the world's largest exclusive producer of enameled sheet steel and cast iron wares, is said to contemplate increasing its equipment as the result of quite a large influx of orders within the past two months.

Bruno V. Nordberg, president of the Nordberg Mfg. Company, Milwaukee, has patented a new type of quick acting valve for use on engines and compressors.

The Beloit Water, Gas & Electric Company will make extensions to its system, with a view to giving enlarged service to outlying plants, particularly the metal working industries, which have grown to such proportions there within the past few years.

The Bucyrus Company, South Milwaukee, which is filling a large order for excavating machinery for the Panama Canal Commission, is reported to have decided upon an addition to its foundry, 75 x 130 ft.

At the annual meeting of the Green Bay & Western Railroad, J. A. Jordan of Green Bay was elected general manager, with control of purchases and supplies. Considerable improvements will be made this summer and fall.

The Gerlinger Steel Casting Company, West Allis, Wis., will install two new cupolas and accessory apparatus.

The Manitowoc, Wis., Steam Boiler Works contemplates a steel and concrete addition to its plant, about 60 x 120 ft.

Bids on power machinery are now being taken by the Marathon Paper Mills Company, Wausau, Wis., for its new plant, and specifications for the steel construction will be ready for the first of next month.

J. H. Johnson, formerly of Milwaukee, will build a brass and aluminum foundry at Eau Claire, Wis.

The Gile Boat Engine Company has been incorporated at Ludington, Mich., and will build a factory.

The Eagle Iron Works, South Milwaukee, has repaired

its plant and put it in operating condition. The manufacture of bars and rods may be resumed there shortly.

Luther Lindauer, De Pere, Wis., is ready for bids on the steel work of his new pulp mill at Little Rapids and will contract shortly for electric generating and driving machinery, if convinced of its superiority over line shafting. Steam boiler equipment is also needed.

Cleveland Machinery Market.

CLEVELAND, OHIO, March 23, 1909.

The market shows little if any change. Dealers report no improvement in orders, which are confined almost entirely to single tools. No inquiries of importance developed during the week. Practically all the business is coming from automobile factories, makers of automobile parts and garages. The opening of new garages has created a fairly good demand for small tools for repair work, a large share of the inquiries from this source being for second-hand tools. The supply of second-hand tools is somewhat limited and dealers are eager to find good used tools to replenish their stocks.

Conditions remain about stationary with the local machine builders. A few report slight improvement in orders. Pending the revision of the tariff not much more activity is expected. Builders of heavy handling machinery report some improvement in the outlook, but inquiries are slow in developing into orders. Some new water power projects in the West have brought out inquiries for water wheels and other equipment for these plants. Local structural shops have been benefited by the recent cut in steel and have more work on hand than at any time in many months.

The National-Acme Mfg. Company, Cleveland, reports considerable improvement in the business outlook. The company is now running its screw machine products department at full capacity, being well filled with orders from automobile manufacturers, and an improvement in orders is noted in the machinery department. The company has just added to its products a full line of A. L. A. M. standard castelated nuts, both case hardened and soft, and a line of taper pins. Complete stocks of these new products will be carried at the company's warehouses.

The name of the Comstock Brass Foundry Company, Cleveland, has been changed to the National Bronze & Aluminum Foundry Company. C. W. Comstock, who started the business under the former name, has severed his connection with the company and is now president of a company engaged in a similar business in Akron. He has been succeeded as secretary and manager by J. H. Shafner, who was formerly connected with the Allyne Brass Foundry Company. M. Komito, former vice-president, is president and treasurer. The company reports an improvement in the volume of orders.

The Ohio Roofing Company, Cleveland, whose plant was destroyed by fire a few weeks ago, is erecting a plant on a new site on Thirty-eighth street N. E. The building is 62 x 71 ft., of brick, and two stories high. The company is in the market for some new equipment, including large rolls, squaring shears and a punch.

The Braze Weld Company, Cleveland, has found it necessary to secure larger quarters because of its increasing business, and has moved from Long avenue to a larger plant at 1298 West Fourth street.

It is announced that the General Electric Company will enlarge its plant at Toledo, Ohio, by the erection of an addition 83 x 300 ft., increasing the capacity about 300 per cent.

The Diebolt Safe & Lock Company, Canton, Ohio, will erect another addition to its plant, being an extension to the machine shop recently built. The building will be used for a machine shop and furnace room.

The Empire Brass Mfg. Company, Cleveland, has increased its capitalization from $20,000 to $50,000, more capital being needed because of the growth of business. The company may decide later to enlarge its plant.

The National Sanitary Mfg. Company, Salem, Ohio, which recently established a plant for the manufacture of porcelain enameled cast iron bathtubs, sinks, &c., reports that it is receiving more orders at present than can be comfortably taken care of.

The city authorities of Barberton, Ohio, will purchase an air compressor for the municipal water works plant.

The Belmont Stamping & Enameling Company, New Philadelphia, Ohio, will enlarge its plant by the erection of an addition 80 x 100 ft. The increase in business makes the enlargement necessary.

The Columbus Auto Brass Company, Columbus, Ohio, recently incorporated with a capitalization of $10,000, will have its plant at 181 West Maple street and will manufacture and repair brass parts for automobiles and do brass spinning and other brass work. The officers are G. Edwin Smith, president; C. E. Roth, secretary and treasurer; Roy Coffman, superintendent.

The Standard Bronze & Brass Company, Columbus, Ohio, has been incorporated, with a capitalization of $10,000, to do a general business as a brass and bronze founder. The incorporators are O. W. Pletcher, M. K. Pletcher, T. Lehman and W. H. Knauss.

The Board of County Commissions of Stark County, Canton, Ohio, will receive bids on April 12 for a 4-ton ice making plant and a lighting plant for 375 16-candlepower lamps.

Philadelphia Machinery Market.

PHILADELPHIA, PA., March 23, 1909.

A little spotty improvement has been observed in the local machinery market, but its condition generally shows little change. Several moderate orders, covering a number of small tools, together with an occasional larger one, were reported by dealers. These have usually not been new propositions, but rather those which have been under consideration for quite a long time. The general run of business continues of an individual character, and is still closely confined to the medium and smaller classes of tools. The uncertainty regarding the outcome of the conferences of the anthracite coal miners and operators is holding back business in the anthracite coal mining district, while the agitation regarding the new tariff bill also has an unfavorable influence. The effect of the proposed provisions regarding machine tools and machinery has not been very freely commented on, manufacturers preferring to await more definite information before committing themselves. Inquiries do not come out freely, consumers withholding any purchases beyond immediate needs. The reductions of wages in many industrial lines, as well as the uncertainty of prices of both crude and finished materials, has a detrimental influence on the trade generally, and in many cases buyers will await adjustments conforming with the new conditions before they enter the market for any material quantity of equipment.

Manufacturers report little change in conditions. Orders continue to come in irregularly and operations at plants show but little change, except probably the smaller ones operating on special equipment, which as a rule are fairly busy. The larger concerns show little gain in production.

The second-hand machine tool trade continues of an irregular nature. Business is still of a day to day character and sales are principally along the lines of the smaller metal and woodworking tools. There is a better demand for power equipment, mainly from the trade outside of the metal working lines. Several large propositions are under consideration and there is quite a fair run of moderate sized business.

The situation in the foundry trade continues unchanged. Some of the gray iron foundries paying considerable attention to municipal and textile work note a fair run of business. General jobbing foundries and steel casting plants note no particular improvement in the demand.

Ballinger & Perrot, engineers, have completed plans and are taking estimates for a large plant for the Grape Products Company, Northeast, Pa., for the manufacture of unfermented grape juice and allied products. Two electric elevators will be installed, for which the engineers will take bids. The power plant equipment, including two boilers, engines and generators, will be purchased by the company direct.

Bids for the construction of the filter plant at Queen Lane were opened by the Director of the Department of Public Works, Philadelphia, on the 17th inst. Seven bids for the work were offered, ranging from $1,983,700 to $2,268,200, the time required to finish the work varying from 20 to 30 months. It may be decided to reject all bids and readvertise for proposals in the hope of obtaining an earlier completion of the work, as well as a probable reduction in cost.

The Screw Cutting Company of America, 150 Berkley street, Wayne Junction, expects to occupy its new plant at Seventeenth street and Sedgely avenue the coming month. Forty special machines, having a capacity of cutting lead and feed screws from the smallest up to 12 in. in diameter, and of any length, will be installed. Any pitch or style of thread, mathematically correct and capable of exact duplication, will be made.

The E. H. Mumford Company reports a fair volume of business in foundry molding machines. Two split pattern machines are building for export to Milan, Italy, while three heavy jolt ramming machines for domestic delivery are in course of manufacture. This company has furnished a 16-in. jolt ramming machine with a 6-in. steel table to a large steel plant for making cores for ingot molds.

Edward Fay & Son have been awarded a contract to build an ice manufacturing plant for the Western Ice Mfg. Company, Cardington, Delaware County, Pa. The plans are by the Pennsylvania Engineering Company, and the complete plant, it is understood, will cost $65,000.

The Quaker City Box Company has had plans made and is taking estimates for a new factory and power house to be

built at Ontario and B streets. The plans call for a one-story brick building, 73 x 165 ft., with an ell 38 x 60 ft.

The Light House Engineer, Wilmington, Del., will receive bids until April 3 for the erection of the superstructure for a lighthouse at the Elbow of Cross Ledge Light Station, Delaware Bay. Bids will also be received by him until April 7 for the completion of the foundation and erection of a lighthouse at Miah-Maul Light Station in Delaware Bay.

The Energy Elevator Company continues to operate its plant close to normal capacity. A number of electric elevators have been installed recently, particularly for the local trade. The demand from out of the city points is scarcely as good as it was, although several large elevators have been shipped to distant points, including among others a worm screw feed hoist to go to Columbiana, Ohio, and several automobile lifts for Western customers. There has been little business offered in the export trade, but the outlook in the domestic field is considered encouraging.

The Northern Indiana Gas & Electric Company has been incorporated under Indiana laws with a capital of $5,000,000. This company has taken over the Michigan City Gas & Electric Company, Michigan City; Indiana Harbor & East Chicago Electric Company, and South Shore Electric Company, Hammond, Ind. At the latter point a large plant will be installed to supply electricity to the nearby towns both for lighting and manufacturing purposes, but it is uncertain when operations will be started. The directors of the company are: C. H. Geist, C. W. Fox, A. H. MacAdams and Herman A. Lane, all of Philadelphia; Rufus C. Dawes, Chicago; Paul A. Neuffer and Harry H. Phillips, Hammond, Ind. C. H. Geist is president, and C. W. Fox secretary-treasurer. The office is located in the Land Title Building, Philadelphia.

Government Purchases.

WASHINGTON, D. C., March 23, 1909.

The Department of the Interior, Washington, D. C., will receive bids until April 15 for a water works system at Fort Belknap, Mont.

The Isthmian Canal Commission will soon ask bids for a quantity of supplies, including three horizontal duplex piston pumps.

The following bids were opened March 16 for machinery for the navy yards:

Class 161.—One No. 1 oxy-acetylene welding plant—Bidder 45, Davis-Bournonville Company, New York, $650; 85, Industrial Oregon Company, New York, $1647.50; 105, Linde Air Products Company, Buffalo, N. Y., $831.

Class 182.—One controller and generator—Bidder 69, General Electric Company, Schenectady, N. Y., $342.

The following bids were opened on February 8 for a motor for the power boat of the tender Hibiscus:

F. A. Brownell Motor Company, Rochester, N. Y., $1453.80, accepted.

Murray & Tregurtha Company, South Boston, Mass., $1570.

Under bids opened January 12 for machinery for the navy yards the Chicago Pneumatic Tool Company, New York, has been awarded class 133, six pneumatic drilling machines, $291.80.

Under bids opened February 2 for machinery for the navy yards, Alfred Box & Co., Philadelphia, Pa., have been awarded class 1, one traveling crane, $1900.

The following awards have been made for machinery for the navy yards, bids for which were opened February 23:

Vulcan Iron Works, Milwaukee, Wis., class 11, one locomotive, $3500.

Baird Machinery Company, Pittsburgh, Pa., class 103, one boring mill, $4488.

Acme Machinery Company, Cleveland, Ohio, class 121, one triple bolt cutter, $1251.

Vermilye & Power, New York, class 122, two centrifugal pumps, $1110.

Mirc Fuel Oil Equipment Company, Norfolk, Va., class 151, one brass melting furnace and one positive pressure blower, $4538.

The following awards have been made for machinery for the navy yards, bids for which were opened March 2:

Detroit Hoist & Machine Company, Detroit, Mich., class 11, seven automatic motor hoists, $1410.

Cleveland Pneumatic Tool Company, Cleveland, Ohio, class 31, eight pneumatic drills, $30.

Montgomery & Co., New York, class 112, one valve reseating machine, $325.

Steel Car Wheel Sales.—Press reports that the Pennsylvania Railroad Company had placed an order with the Carnegie Steel Company for 40,000 steel car wheels are untrue. That railroad company has placed an order with the Carnegie Company for about 10,000 steel wheels to go on 1150 coke cars being built for the road by the Cambria Steel Company, Johnstown, Pa. The Carnegie Steel Company has also closed contracts with the Chicago Railways Company and the Chicago City Railways Company for all the steel wheels required for new cars and replacement on these two systems for the two years ending December 31, 1910. It is estimated that these two systems will require in this period fully 30,000 steel wheels or more. The Schoen steel wheel plant of the Carnegie Steel Company at McKees Rocks, Pittsburgh, is being operated full time and is turning out about 750 steel car wheels per day, and has orders ahead to take this output for several months.

Raising Capital for Manufacturers.

Many plans have been tried by commercial associations in the endeavor to provide a way to induce the location of more manufacturers or to assist local concerns to expand, where for one reason or another the concern is unable to get sufficient capital to carry on business to the best advantage. Some of these plans have been successful, and among those which have been notably so has been one practiced at Williamsport, Pa., for several years and which has been adopted recently with but few variations by Davenport, Iowa.

The Williamsport plan provides that public spirited citizens, preferably those who are members of the commercial organization fathering the plan, shall sign a joint agreement that during the next five years, the life of the contract, each signer will become liable for the full amount set opposite his name on the subscription list if at any time the full amount is needed, or for any fraction of the amount he subscribes, provided that for any reason a part of the total guarantee fund has to be paid in. The subscribers select from their number three or five men to have charge of the guarantee fund, who will be attorneys in fact for each subscriber. This Board of Directors, or Executive Committee, makes loans to new business enterprises needing assistance. The subscription list is then presented to the local banks as collateral for the loan to be made to the manufacturer applying for it. This loan must be paid back with interest in a specified time. If a concern thus assisted should fail and the bank be unable to collect from the assets the amount of the loan, the deficit is made up by an assessment, pro rata, on the subscribers to the guarantee fund. Thus while the subscribers loan their credit, they put up no actual money unless there is a financial failure of the beneficiary. It will be seen, therefore, that only in a remote contingency will a subscriber ever be called upon to pay in any considerable part of the amount he has pledged. The trustees of the fund, of course, take from the business stock or other pledges for the loan, and in case of any failure there will always be some available assets.

The advantages claimed for the plan are that the total amount of the guarantee fund does not have to be paid in in cash, thus taking from men who do things money which they could employ to advantage themselves. It prevents the possibility of the committee in charge taking risks in making loans that they might take if the fund was all paid in in cash. It makes it possible for a manufacturing concern, that after investigation is found to be all right, to borrow money under conditions that would prevent it from borrowing from a bank direct, for its paper is indorsed by local men, so to speak—an indorsement that could not be otherwise secured for a large amount.

From 1900 to 1905 Williamsport, with its population of only 28,000, had a guarantee fund of this description of $215,000. It was wisely used and many productive enterprises were brought to the city, while others already located there were assisted to expand. In addition to the statistics of Williamsport that prove the expansion in the first five-year period, so well pleased were the public spirited of that city with the showing that they now have available a fund of $461,000, which, it is claimed, would not have been subscribed if there had been any particular loss to the original subscribers.

The Maryland Rail Company, Cumberland, Md., was placed in the hands of receivers March 22. The company rerolls old steel rails into light rails, operating on a lease the mill owned by the Baltimore & Ohio Railroad Company. Howard H. Dickey, Lloyd Lowndes and Henry Shriver are the receivers.

HARDWARE

WHEN President Roosevelt appointed the Country Life Commission, the object of which was the improving of the condition of the farmers and rural population, it occurred to many that the class the inquiry was intended to benefit does not need uplifting nearly as much as do multitudes in the towns and cities. The poor of the great centers, the immigrants who are constantly flocking to our shores, the illiterate in all parts of the country, the employees in mines and mills, toiling under conditions which often tend to swift and sure deterioration, physical and mental, are all classes of the population whose situation might seem to call for commiseration and help, and perhaps the putting forth of effort in their behalf by the Government. The farmers are, however, far removed from the limitations which these less fortunate classes endure. The farmers are in most comfortable circumstances, they are as a rule intelligent and self-reliant, and have the assurance in most cases of a good living and the gradual and sometimes rapid accumulation of property. It is not easy to find sufficient reason for singling them out as the one class in the country whose uplifting is to be gravely considered by an able and imposing national commission.

The manner in which the farmers regard this movement which treats them as objects of charity is amusing and not a little pathetic. Their feeling is represented in the expressions of the country papers, and especially of the agricultural papers circulating among them. It is thus made evident that they resent the indignity which they deem is thus put upon them. The general welfare of the farmers is emphasized and many comparisons are made between them and the more cultured classes, very much to the disadvantage of the latter. "How silly," exclaims a paper in the West, "for a lot of Eastern dreamers to tell us what to do. The farmers can give the richest man in Washington pointers on how to be happy." When the appointment of the Commission is regarded in this light it is not strange that the recommendations of the Commission are criticised sarcastically and its statements frequently contradicted. This is pathetic, but it shows that the farmers have a more just appreciation of their position than is implied in the appointment of the Commission to recommend measures for their relief and benefit. The manner in which they treat the whole matter is creditable to their self-respect.

Recent years have certainly contributed substantially to the financial welfare of the farmers, and many of them are most desirable customers for the local merchants. There has been a corresponding improvement in their mode of life and multitudes of modern conveniences and up to date appliances are to be found in their homes. With the advantages, however, which they enjoy as a result of their independent position as cultivators of the soil and creators of wealth, there are undoubted disadvantages, and they necessarily suffer to some extent from their isolation and the peculiar conditions in which they live. There does not, however, appear to be enough of such limitations to justify their being singled out and made the special subjects of an official inquiry with a view to their uplifting.

Condition of Trade.

The tariff question continues to be a prominent topic of discussion, with widely different views as to the probable effect the new bill will have upon business and values. This doubtless has a repressing influence on trade, tending to cause the holding back of business until it is known what form the bill will assume after the amendments to which it will be subjected. A good deal of the existing hesitation in trade is ascribed to this uncertainty, and the tariff has thus to bear perhaps more than its share of responsibility for whatever is unsatisfactory in the commercial and industrial situation. The condition of the iron market, too, is such as to make buyers conservative, causing them to adhere pretty consistently to the policy of purchasing only such goods as are needed to meet their present requirements. This disposition is illustrated in the case of many of the jobbers, whose orders are for moderate quantities on which immediate shipment is requested. In this state of things the open changes in the price of Hardware are this week comparatively few, but in addition to the reductions which have already taken place there is a good deal of revising of quotations which in many lines would show weakness if sufficient stress were put upon them. In the matter of demand there is much unevenness, some lines moving in fair, though in nearly all cases, in moderate volume, while others without any apparent reason are much more sluggish. Orders for carpenters' tools are as a rule disappointingly light, while Builders' Hardware is among the lines in regard to which less complaint is made. Modern methods of construction, as, for example, the use of concrete, are credited with making a diminished demand for the tools and appliances which are used under old methods. Goods for the agricultural classes are selling quite freely, and manufacturers and jobbers have little ground for complaint in regard to them. One result of the slackening of the pace in this country, owing to a lessening of the home demand, is the increased attention which is being given by manufacturers to the cultivation of foreign business. Many houses are thus finding a very advantageous outlet for their products.

Chicago.

While trade has not reached the point of improvement anticipated in the hopeful forecasts of some months ago, when it was expected that a rapid movement toward full restoration of commercial activity would mark the advent of the spring season, the reports from Western jobbing centers nevertheless indicate material gains over corresponding periods of last year. Some exceptions may be found in certain sections it is true; but, as a rule, the consumptive demand in agricultural territory is increasing rather than diminishing. Moreover, the prospects for new stores of wealth in another bountiful harvest are as yet unmarred by any foreboding clouds. But as against these conditions there are counterbalancing influences that tend to retard the free development of business along normal lines. With values in iron and steel products still in process of readjustment and tariff revision threatening radical changes in many schedules, together with the probability of a more or less general realignment of wage scales to a lower level, it is not at all surprising that buyers should be keeping close to shore in the matter of purchases. Instead of increasing stocks there is an evident desire among all distributers to reduce their holdings to the closest possible limits, and

it therefore follows that the orders coming out reflect pretty accurately the demands of consumption. This practice results in spasmodic fluctuations in the flow of business which makes it extremely difficult to follow its course in weekly periods. Jobbers report that one day's orders will represent a practically normal business which will suddenly drop to almost nothing on the succeeding day, and thus continue to rise and fall in a most erratic manner. Other lines besides Hardware are similarly affected, due probably to the same causes. The average, however, is running rather better as to volume than a cursory view of the situation would indicate. The market on Nails and Wire has steadied down, and prices are said to be as firmly held as at any time prior to the recent flurry. At the same time buyers are not extending their orders ahead of current requirements. Shipments of Wire Cloth, against contracts made earlier in the season, are moving at a good rate, and there is some new buying by those who have delayed placing orders in the hope of a break in the ruling prices, which are thus far unchanged. What price changes there have been recently have nearly all been of a downward trend; but, owing to the extent to which the late cut in steel was anticipated by earlier reductions made in many Hardware lines, there are not many spectacular revisions.

NOTES ON PRICES.

Wire Nails.—The market is in substantially the same condition as at our last report, with an admirable maintenance of prices generally by manufacturers and jobbers. The reluctance of the trade to place contract orders or even to buy beyond immediate requirements, indicates the caution which the merchants are observing in view of the probability of a change in prices before long. The shipments from mill are of excellent volume considering the conditions which prevail at this time. Quotations continue as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.95
Carload lots to retail merchants	2.00
Less than carloads to jobbers	2.00
Less than carloads to retail merchants	2.10

New York.—Demand continues of moderate proportions, the requirements of the retail trade appearing to be comparatively light. The local base price of $2.25 per keg for small lots at store is reported as being fairly well sustained.

Chicago.—After a period of wavering which threatened to terminate in a slump in prices, the market has steadied down and is said to be firm and regular. Both mill and jobbing interests are reported to be upholding the recognized schedule of prices. Buyers, however, are avoiding as far as possible the accumulation of stocks, seeking rather to reduce them as low as practicable against a possible decline later on. Orders in consequence are being gauged to meet only current requirements. These, in the aggregate, are large enough to produce a fair volume of business, which, while not what it would be under more favorable conditions, gives evidence of a reasonably strong consumptive demand. Quotations are as follows: $2.13 in car lots to jobbers, and $2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—Conditions in the Wire Nail market show no important change from those noted in our report of last week, with the exception that several of the leading makers report an increase in demand, due to the favorable weather and to the opening up of spring trade. Unlike other finished products, the market on Wire Nails is being very well sustained, and very few complaints are being heard of cutting in prices. It is stated that the leading interests are adhering closely to regular prices, but at the same time the trade is placing orders conservatively, not knowing how soon it may be decided to make a change in prices, and with this in view jobbers and retailers are keeping stocks down to a minimum. If the manufacturers adhere to their present policy there will be no trouble in maintaining prices, but should even one of them break over, it would probably cause a general reduction. At present, however, conditions in the Wire Nail trade are very satisfactory, demand expanding steadily and prices well maintained.

Cut Nails.—Buying is along conservative lines, in small lots and for present requirements. The question of the stability of the market no doubt makes buyers conservative, especially as the demand from their customers is not heavy. Steel Cut Nails continue to be regularly quoted at $1.80, base, per keg, f.o.b. Pittsburgh, for carloads, but on desirable orders this price is frequently shaded from 5 to 10 cents. Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails in the Western market, but in the East this differential is not observed. A meeting of the Eastern Cut Nail Association is being held to-day (Wednesday) at Philadelphia.

New York.—Demand is comparatively light in the local market, and retail merchants are carrying small stocks. Nails are held on the base price of $2.05 per keg in small lots at store.

Chicago.—Although the demand for Cut Nails is discouragingly small, the near approach of spring and increased activity in building construction promises early betterment. Until the stimulus of such demand is felt buying will probably be confined to such small lot orders as are now being placed. Regular quotations are as follows: In carload lots, to jobbers, Iron Cut Nails, $2.08; Steel Cut Nails, $1.98.

Pittsburgh.—With spring trade opening up and the building season starting an improved demand for Cut Nails is confidently expected by manufacturers and the trade. At present orders are confined to small lots for actual needs, and a fair amount of new business is being placed with the mills. The trade is buying conservatively, owing to the uncertainty existing as to whether the manufacturers will be able to maintain present prices.

Barb Wire.—A moderate improvement in buying is reported by the mills, the tendency being to order in such quantities as to avoid the accumulation of stocks. The feeling that prices may decline is causing the trade to endeavor to reduce their stock and avoid purchasing beyond present requirements. There is, however, a fair movement of business. Quotations are on the following basis, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Chicago.—Milder weather is believed to be responsible for slight improvement noted in the amount of business booked during the past week. The season is now well advanced in the South, and only a short time remains until Fence building in the North will give way to preparations for seeding. In the meantime buyers are ordering conservatively to avoid accumulating surplus stocks, anticipating the possibility of a future recession of prices. Quotations are as follows: Jobbers, Chicago, car lots, Painted, $2.28; Galvanized, $2.58; to retailers, car lots, Painted, $2.33; Galvanized, $2.63; retailers, less than car lots, Painted, $2.45; Galvanized, $2.75; Staples, bright, in car lots, $2.25; Galvanized, $2.55; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—We are advised that some improvement in demand for Barb Wire is already being felt, and makers believe that trade will steadily improve from this time forward. With the return of favorable weather and the opening of spring trade, it would seem that demand is certain to enlarge. Manufacturers are adhering to their policy of maintaining prices, and very few reports are heard of any cutting. The trade is buying conservatively, placing orders mostly for small lots for actual needs, with the desire to keep stocks as low as possible.

Plain Wire.—The conditions ruling in the Plain Wire market are similar to those which obtain in the market for Barb Wire, and buying is confined to small lots. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of $1.80 for Plain, and $2.10 for Gal-

vanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Chicago.—While specifications are coming out a little more freely, owing to the advance of the active Fence building season, manufacturers are meeting current demands by frequent orders of small lots. The causes responsible for this policy are the same as govern buying in other like commodities. Only confidence in the stability of prices will relieve this condition. We quote as follows: Car lots to jobbers, $1.98, f.o.b. Chicago, and to retailers, $2.05.

Pittsburgh.—New orders are confined mostly to small lots for actual needs, but we are advised the trade is placing more orders than for some time, and actual new business being entered by the mills is showing material increase. The trade is buying conservatively, owing to the uncertainty as to whether the manufacturers will be able to maintain present market rates.

Leather Belting, Lace Leather, Etc.—The last few weeks have shown little change in the market for Leather Belting, Lace Leather, &c., which continue reasonably firm. Something is heard regarding the possible effect of free hides as provided for in the proposed tariff bill, and this matter may have some weight with buyers who are not anticipating their requirements. Manufacturers, however, assert that even with hides on the free list, such as might be imported would not be adapted to the production of regular grades of Belt and Lace and would have no material effect on prices.

Conductor Pipe, Etc.—Very low prices on Conductor Pipe, Eaves Trough, &c., have been made to competition for the past three or four months, and it is probable that few additional concessions of importance have followed the open reduction in the price of Sheets. In some cases, however, the market is from 2½ to 5 per cent. lower and it is probable that extreme prices are more generally made than heretofore. On mill shipments good buyers can undoubtedly secure a discount of close to 80 per cent. on less than carload lots delivered. Copper lines are fairly steady at from 50 and 10 to 60 per cent. discount. Elbows are also in pretty good shape.

Rubber Belting, Packing, Etc.—The crude Rubber market has developed a declining tendency which, emphasized by general dullness and sharp competition, has led to lower prices on Mechanical Rubber Goods, Belting, Packing, &c. Manufacturers are, of course, trying to maintain the market on their standard brands, the concessions reported being principally on unbranded goods of the cheaper grades.

Coat and Hat Hooks.—Some manufacturers of Wire Coat and Hat Hooks show a tendency to make special prices where by doing so they can influence considerable business. Others, however, decline to meet these figures and are holding their discount to average trade at 80 per cent., or a trifle better.

Galvanized Ware.—Manufacturers' quotations on Galvanized Ware, Pails, Tubs, &c., have not reflected appreciably the general reduction in Sheets which, it is stated, is largely offset by increased cost of Spelter.

Tinware.—A tone of weakness has been observed in the Tinware market during the past few weeks. This was apparent even before the general reduction in Tin Plates, which, however, has had the natural effect of making concessions a little more general. The line is from 5 to 10 per cent. lower than early in the year.

Paris Green.—Manufacturers of Paris Green have not announced prices for the coming season, and will probably not do so before the middle of April or later. Some orders have been booked subject to price ruling on date of shipment, but business of this kind is exceptionally light for the time of year. In this connection it is interesting to note the dates on which prices have been announced during the past four years, as follows: January 5, 1905; January 19, 1906; April 11, 1907, and April 27, 1908. It will be seen that each year the date of announcement has been later than the preceding one.

Rope.—There is little of interest to report in the cordage market, the demand being along conservative lines. Manufacturers and handlers of Rope are seeking business industriously, but the results are not commensurate with the effort. There is no notable change in prices on small business, but 8 cents, basis, is obtainable on larger orders for Pure Manila Rope. General quotations on small quantities of Rope, 7-16 in. in diameter and larger, are as follows: Pure Manila, 8¼ to 8½ cents; Pure Sisal, 6¾ to 7 cents. Mixed grades of both kinds grade down in price according to quality. Jute Rope, ¼ in. and up, No. 1, is 6¼ to 6½ cents, and No. 2, 5¼ to 5¾ cents.

Window Glass.—Production has increased owing to the starting of additional Glass plants, while there has been an absence of the usual spring demand. Uniformity in prices is so little regarded by distributors of Glass that the market is in an almost demoralized condition. Recent quotations in western territory, from jobbers' list, range from 90 and 25 to 90 and 35 per cent. discount on single, and from 90 and 30 to 90 and 45 per cent. discount on double strength Glass. The western section of the country shows more activity in building operations than the East, and the outlook for a normal business in the eastern portion of the country is disappointing. The average selling price from factory for the month of February is stated to have been 90 and 30 per cent. discount on single and 90 and 35 per cent. discount on double strength Glass. It is not improbable that the average for the present month will be lower.

Linseed Oil.—The demand, for the most part, is for such quantities as are required for current needs. The quantity of Oil in second hands in the metropolitan district is said not to exceed 10 carloads, a portion of it having been sold on the basis of about 53 cents per gallon. Crushers are not anxious for business at 54 cents, and some are inclined not to accept less than 55 cents. In the course of business it recently developed that the offer of an order for Oil in tank cars at a price, for delivery up to early fall, was refused by several crushers, presumably because they did not have enough Seed on hand, and of the uncertainty of being able to buy it at a price which would permit them to profitably fill the order. Card prices in 5-bbl. lots are as follows: State and Western Raw, 55 cents per gallon; City Raw, 56 cents per gallon. Boiled Oil is 1 cent advance on Raw.

Spirits Turpentine.—The offering of tanked Turpentine has had a depressing effect upon the Southern market, which is reflected in the New York market where buying is of a hand to mouth character. The local market is weak at former quotations. The following prices represent the New York market: Oil Barrels, 40 to 40½ cents; Machine Made Barrels, 40½ to 41 cents per gallon.

Buying An Axe.

THE story is told of a man who went into a Hardware store to buy an Axe. Being shown the article and informed that the price was $1.15, he said: "Why, I can get the same kind of an Axe from a mail order house for 90 cents."

"Very well," said the Hardwareman, "I will give it to you for the same price provided that you will do the same with me as you would with them."

"All right," replied the customer as he handed over a dollar bill, the merchant giving him back 10 cents in change.

"Now," said the Hardwareman, "I want 25 cents more to pay express charges," which the purchaser gave him. "How much did your Axe cost you?"

"One dollar and 15 cents," the man answered.

"Very good; now give me 5 cents more for money order fees and postage," which the purchaser had to hand over. "Now how much did your Axe cost you?"

"One dollar and 20 cents," said the customer.

"Not so cheap after all," said the merchant, whereupon he picked up the Axe, tossed it back on the shelf and told the customer to call for it in 10 days, as that would be as soon as he could get it if he had ordered it from the mail order house.

CALIFORNIA RETAIL HARDWARE ASSOCIATION.

The eighth annual convention of the California State Retail Hardware Association was held at Oakland on the 10th, 11th and 12th inst. The meeting was largely attended and was regarded as the best in the history of the association. The membership is now nearing the 300 mark and accessions are coming in quite freely.

The meeting was called to order on the 10th by the President, George H. Smith, Oakland, who briefly welcomed the members and then introduced I. Harrison Clay, president of the Oakland Chamber of Commerce, who in the absence of Mayor Mott formally welcomed the visitors to the city.

Past President Fred T. Duhring, Sonoma, responded to the address of welcome. After a few pleasantries Mr. Duhring compared present Oakland with the town of former years, adding that it was rare in days gone by for business organizations from outside to meet in the city, but that now it was recognized all over the State as a promising manufacturing center.

Parcel Post.

Otto Stoesser, Watsonville, and W. C. Barth, Corona, delivered formal addresses on the subject of parcel post.

G. H. SMITH.

J. H. STEVES.

C. H. PHILPOTT.

Mr. Stoesser treated the subject in an interesting way from three standpoints: As an economic or business proposition of the Government; its effect on wholesale and retail business generally in the towns, small cities and country districts of the land; and its influence on the future welfare of the nation as a whole.

Mr. Barth advocated a campaign of education which would keep the senators and representatives alive to the needs of the people and the exact status of their grievances. He urged the writing of a personal letter by each of the members present to the representative of his district and also to the two United States senators.

F. P. Nickey, Santa Ana, in the general discussion which followed suggested that other bodies of merchants than the Hardware men be interested in the fight against parcel post.

The president called for an expression of opinion, which resulted in the adoption of a resolution to the effect that the members present pledge themselves to get to work at home among their fellow tradesmen and write to members of Congress protesting against the adoption of any such legislation.

Case and Cartage.

W. H. Young, Napa, read a paper on the subject of "Case and Cartage," in which he urged the members to put themselves on record against these charges in the form of a resolution to be presented to the jobbers, asking them to discontinue this tax.

Hardware Window Display.

Fred T. Duhring, Sonoma, presented a paper on Hardware window display, in which he emphasized the importance of the silent salesmen, window exhibits and showcases in the store. He suggested that the members give special care and attention to the systematic and orderly arrangement of their stores so that customers may appreciate at a glance the different classes of goods carried. He emphasized the desirability of cleanliness in the store and frequent changes in the displays in windows.

The Loaded Shell Question.

On Thursday afternoon there was a joint session of the jobbers and retailers at which the Loaded Shell question occasioned very animated discussion. A. L. Scott, Pacific Hardware & Steel Company, San Francisco, in the course of an address on "Reciprocity," said that the retail Hardwaremen were not making a profit on Loaded Shells and that the matter should be inquired into by the association and remedied.

F. A. Osborn, Oakland, said he had inquired very thoroughly into the question and found that the low price of Shells was due to their being handled in large quantities by the pawnbrokers of the city, adding that the latter must have obtained the Shells from the jobbers. He asked Mr. Scott if he considered pawnbrokers legitimate customers.

Mr. Scott replied that when they were recognized pawnbrokers he did not, but when they conducted a Gun and Ammunition business as an adjunct to the pawnbroking line they came under the head of legitimate customers.

The question was again taken up at the Friday morning executive session and discussed at length. Some of the members were in favor of referring the matter of establishing a uniform price among the jobbers to the Executive Committee, while others asked that a committee be appointed to confer with the jobbers and report on the matter before the convention adjourned.

The latter motion prevailed, and the president appointed a committee of seven to wait on the jobbers. Subsequently this committee reported that the jobbers were ready to agree to a certain price and that complaints would be taken up by the association with the dealers who sold the goods at lower prices.

Hardware Mutual Insurance.

The entire morning session on Thursday was devoted to a discussion of the mutual fire insurance question. Formal addresses were made by H. Hewett, San Francisco, and A. H. Elliott, Spokane, Wash., of the Northwestern Mutual Fire Insurance Company. The following resolutions were adopted and wired to Assemblyman A. W. Pulcifer and State Senator J. Clem Bates at Sacramento:

Resolved, That we protest against the attempt to repeal the mutual fire insurance act.

Resolved, further, That we favor the amendment of the present act so as to make it practicable, as per Senate bill No. 1090 and Assembly bill No. 1074.

Resolved, further, That we protest against Senate bill No. 1027 and Assembly bill No. 1191, aimed directly against mutual fire insurance companies operating in this State.

Differential on Wire Products.

John C. White, Marysville, who is affectionately referred to as the "Father of the Association," having had much to do with its formation, read a valuable paper on "Differential on Wire Products." Some discussion followed, and the whole matter was then referred to the Executive Committee for action.

Resolutions.

Among the resolutions adopted were the following:

That the members of the association use every means in their power to prevent the passing of any parcel post legislation by this or succeeding Congresses.

That jobbing be done by jobbers and retailing by retailers only.

That the association discountenances the action of any jobber who sells Hardware of any description to any concern that does not carry a general stock of Hardware.

Election of Officers.

The election of officers for the ensuing year resulted as follows:

PRESIDENT, George H. Smith, Oakland (re-elected).

FIRST VICE PRESIDENT, John P. Maxwell, Oakland (succeeding C. H. Philpott).

SECOND VICE PRESIDENT, J. H. Steves, St. Helena (re-elected).

THIRD VICE-PRESIDENT, H. E. Humphrey, Whittier (re-elected).

SECRETARY-TREASURER, L. R. Smith, Oakland (re-elected).

President Smith appointed the following Executive Committee: H. A. McCall, San Francisco; J. H. Steves, St. Helena; H. E. Humphreys, Whittier; Frank Rittigstein, Oakland; F. A. Osborn, Oakland; John W. Baxter, Watsonville; George M. Hickman, San Francisco; I. C. Walker, San Francisco; R. Barcroft, Merced; G. H. Glassford, Fresno; W. C. Barth, Corona; W. J. Boschin, San Jose; John C. White, Marysville; R. O. Kimbrough, Sacramento; F. T. Duhring, Sonoma; E. T. Bryant, Santa Maria; A. Kettelin, Santa Rosa, and George H. Smith, Oakland.

Entertainment.

The convention was brought to a very enjoyable conclusion with a banquet on Friday evening, at the Hotel St. Marks, at which there was a large attendance of retailers and their ladies and representatives of the jobbing trade. Wakefield Baker was toastmaster, and among others who addressed the gathering were Andrew Carrigan, John C. White, President Smith, Frank Rittigstein and I. Harrison Clay, president of the Oakland Chamber of Commerce. After the banquet there was a dance at Castle Hall.

Another very pleasant feature of entertainment was a smoker on Wednesday evening at the convention hall, in which the retailers and jobbers participated.

The ladies accompanying the members were handsomely entertained by local committees during their stay in the city, and were taken on a number of trolley rides to points of interest in and about Oakland. They also attended a theatrical performance at the Orpheum.

Convention Notes.

The selection of the next meeting place was referred to the Executive Committee.

The report of the Executive Committee for the year was read by F. T. Duhring, Sonoma, and was adopted as presented.

H. G. Garnett, president of the Oregon Retail Hardware Association, was a visitor to the convention and made an interesting address on the subject of "The Question of Retailers Entering the Jobbers' Field."

Other addresses made during the joint session of the jobbers and retailers on Thursday afternoon were by Andrew Carrigan, Dunham, Carrigan & Hayden Company, San Francisco, on "The Proper Channels of Distribution and the Relations of Trade Associations Thereto"; by Wakefield Baker, Baker & Hamilton, San Francisco, on "Past Meetings, Past Members and the Progress of Various Trade Interests to Date," and by A. C. Rulofson, A. C. Rulofson Company, San Francisco, on "Individual Effort in Association Work."

Other papers read during the convention were by Frank A. Rittigstein, Oakland, on "Discount, Interest and Collections"; by W. C. Barth, Corona, on "Clearing House and Its Benefits"; by M. M. Brown, San Francisco, on "Advertising and Special Sales"; by F. A. Osborn, Oakland, on "The Benefits of the Association," and by George M. Hickman, San Francisco, on "Bad Effects of Price Cutting and Special Sales."

On the 19th inst. a strong local association was started by the San Francisco merchants as the result of a meeting at which John P. Maxwell, L. R. Smith and Frank Rittigstein were also present as officers of the California Association. It is expected that many such local associations will be organized all over the State.

Wright Wire Company's Fire.

THE Wright Wire Company, Worcester, Mass., has suffered a double loss by fire, buildings at Worcester and Palmer, Mass., having been destroyed. On the morning of March 20 a portion of the Worcester works was burned with a loss of $100,000. The next morning the rope mill at Palmer was destroyed with a loss of $40,000. However, the company has not been crippled in its deliveries, and is prepared to supply its trade in the same manner as if no fire had occurred. The warehouses at Worcester and Palmer were not touched and are well stocked with the company's products, as are those at New York, Philadelphia, Pittsburgh, Chicago and San Francisco, and arrangements have been made with other manufacturers producing the same lines to supply anything that may be needed. The fire at Worcester destroyed the older portion of the plant, including a weave room and boiler room and a portion of the office. The machine shop was wet down. At Palmer the rope mill, established only a few years ago, is a total loss.

The fires afforded another striking example of the recuperative powers of the American manufacturer. A friendly neighbor offered the use of his offices while the fire was still burning, and at 9 o'clock the same morning the company's clerks were at work, and hundreds of letters to the trade were sent out before night. The same energy was displayed in the shipping department, goods being in process of delivery before 10 o'clock. Temporary offices have been secured in Worcester, and the work of replacing the burned and damaged buildings with modern structures will begin as soon as the insurance has been adjusted.

The stock of the Wagoner Hardware Company, Wagoner, Okla., has been purchased by Henley Brothers Hardware Company, which will carry a line of Hardware, Stoves, Tinware and Vehicles. The business will be managed by H. F. Henley, formerly a traveling representative of the Malleable Steel Range Company, South Bend, Ind.

The Heavener Hardware & Furniture Company, Heavener, Okla., has been incorporated with a capital stock of $5000, and will handle a line of Stoves, Ranges, Household Goods, Harness, Plow Goods, Guns, &c. The officers are: R. L. Walker, president; L. O. Day, vice-president, and O. B. Hudson, manager.

The Citizens Hardware Company has been established at North Fort Worth, Texas, with a capital stock of $7000. The officers of the company are: J. W. Strain, president and manager; J. P. Shirley, vice-president; C. V. Cox, secretary and treasurer.

The Valley Hardware Company, Harrisonburg, Va., has been absorbed by the J. M. Snell Grocery Company and the two businesses will be merged under the style of the Snell Grocery & Hardware Company. The new company will probably be capitalized at about $200,000.

DEATH OF P. L. NORTH.

PETER L. NORTH of P. L. North & Son, died at his residence in Brooklyn, March 20, in his seventy-fifth year. He was born December 26, 1834, at Marimichi, New Brunswick, Canada, coming to New York with his parents when he was about seven years old. For a time he worked for an employer named Barnett, a recognized maker of cases for the jewelry trade and for daguerreotypes, then largely used. About 1859 Mr. North was foreman for one Julius Erbe, at 169 Broadway, in the same business, and who had been making book cards for carrying samples of Pocket Knives, for such representative Cutlery houses as John Russell & Co., Meriden Cutlery Company and Lamson & Goodnow. At that time he also made what were called wraps for carrying surgical instruments.

Mr. North conceived the idea of making rolls for holding samples of Table Knives, and originally made one to

P. L. NORTH.

contain 12 Table Knives, of leather, lined with chamois. This he took to John Russell, then located in the vicinity of Cliff and Beekman streets, who after inspecting it ridiculed the idea and advised Mr. North to stick to the production of sample cards instead. Mr. North persisted, however, and brought it to the attention of C. K. Hawkes, one of the Russell salesmen, who thought highly of the idea and ordered a roll to hold 16 or 18 Knives, but was particular to caution Mr. North not to show it to Mr. Booth, a brother salesman in the same house. However, Mr. Booth becoming cognizant of the incident, persuaded Mr. North to make one for his personal use also, and from this beginning the business grew until rolls were made of various materials, in many sizes and styles, for innumerable kinds and varieties of goods for both domestic and foreign trade. From June, 1895, to March, 1897, one house ordered a total of 30,000 rolls as an article of merchandise.

He began business on his own account about 1860, at first making cases for the jewelry trade, but in 1878 he abandoned that line and devoted his attention more exclusively to the Hardware and Cutlery lines, moving in 1890 to the present address at 16-18 Reade street. Rolls of this character and cases in great variety have long been made for almost everything in Hardware, Cutlery and allied lines, from Bits, Drills and Sharpening Stones to Cutlery in every form, Hammers, Reamers, &c.

The business has been built up and carried on without the employment of salesmen or canvassers of any kind.

Mr. North was a man of high character and of genial and kindly disposition, and was held in great esteem by the trade he served. He leaves three sons and one daughter.

GEO. W. PRENTISS & Co., Holyoke, Mass., manufacturers of Iron and Steel Wire, acquired during the past week a plot of land 80 by 470 ft., situated on the N. Y., N. H. & H. R. R., and directly across the canal from their main mill. Included in this purchase is a valuable waterpower right. The land now contains several buildings which will eventually be removed to make way for an addition to their plant.

HARDWARE FREIGHTS.

FREIGHT RATES TO DENVER REDUCED.

THE Interstate Commerce Commission has ordered the railroads interested to file tariffs making a sharp reduction in rates from Chicago and St. Louis to Denver, this reduction to apply to all territory west of Chicago and St. Louis as well as from those points. The Commission also announces that it will expect the roads operating west of Denver to reduce their rates to Salt Lake and Utah points, in harmony with the reduction ordered recently in tariffs to Spokane, Wash., but no formal order is entered on Utah rates.

The figures below show the present class rates, in comparison with the reduced rates which the Commission has ordered effective:

Class Rates, Chicago and St. Louis to Denver.

	From Chicago.		From St. Louis.	
Classes.	Present rates.	Reduced rates.	Present rates.	Reduced rates.
1	205	180	185	162
2	165	145	145	127
3	125	110	115	101
4	97	85	92	80½
5	77	67	72	63
A	92	80½	84½	74
B	72	63	64½	56
C	62	54	57	50
D	53½	47	48½	42
E	46	40	41	36

This decision is in line with the recent order of the Commission reducing rates to Spokane, and it also follows an order issued last fall, but now held up in the courts, making lower rates to Kansas City from the eastern territory than the "locals" based on Chicago and St. Louis, which the railroads had formerly charged. The rates now in effect to Denver, which the Commission has condemned as unreasonable, are the sums of the locals from Chicago or St. Louis to Kansas City, and from Kansas City to Denver. The Commission holds that the through rate on long hauls should be lower than the sums of locals, because of the saving that is effected in a through haul, by avoiding the terminal expenses that would be incurred at Kansas City, for example, if the movement were actually made in two local hauls.

Only a limited number of "commodity" rates are in effect from Chicago or the Mississippi River to Denver. These are on Pig Iron, Billets, Rails, Railroad Equipment, Pipe and a few other articles. All other forms of manufactured iron and steel are carried at the class rates above given. The principal heavy articles of Iron and Steel, and the heavier forms of Hardware, are carried at the fifth class rate, which has been 77 cents from Chicago, but will be reduced to 67 cents.

New York Iron Store Company.

THE New York Iron Store Company, 141-143 West Twenty-fourth street, New York, is a thorough reorganization of what was formerly D. K. Bramble, Inc. The business is in the various products designated as horseshoers' supplies, iron and steel. W. L. Cooper, the new president, has interested himself in the business and is well known to the trade from his long connection with the Livingston Nail Company, New York, of which he is vice-president and active manager in sole charge of the business.

HENDRICKS & CLASS, selling agents for the Standard Chain Company, Pittsburgh; Evansville Tool Works, Evansville, Ind., and other Hardware manufacturers, are removing their offices and sample rooms from 25 West Broadway to the Hudson Terminal Building, 30 Church street, New York.

Hardware Organizations.

Georgia Retail Hardware Association.

A humorous postal having relation to the recent change of administration at Washington is being circulated among the Hardware merchants of Georgia by E. E. Dekle, Valdosta, secretary of the State Hardware Association, calling attention to and urging attendance at the next annual meeting of the organization, which will be held at Valdosta, May 18 to 20.

Mississippi Retail Hardware Association.

A very interesting programme is being arranged for the annual meeting of the Mississippi Retail Hardware Association, to be held at Jackson, May 11 and 12. The Question Box, under the efficient charge of Mallory Davis, Itta Bena, will be an important feature of the gathering. The entertainment side will not be neglected, and the members will find that their visit to Jackson will not only be instructive and useful, but also very enjoyable. As already announced arrangements have been made for a Hardware exhibition in charge of E. G. Peatross, Jackson, with whom all parties desiring space should communicate.

The Pittsburgh Conventions.

In connection with the joint conventions of the Southern Hardware Jobbers' Association and the American Hardware Manufacturers' Association, to be held in Pittsburgh, June 9, 10 and 11, the details of the various entertainment features, including banquet, smoker, sight seeing trips, &c., are being worked out by various subcommittees made up from the Pittsburgh General Committee, of which Charles S. Hubbard, Ames Shovel & Tool Co., Beaver Falls, Pa., is chairman, whose Pittsburgh address is the Duquesne Club.

Ontario Retail Hardware and Stove Association.

The Executive Committee of the Ontario Retail Hardware and Stove Dealers' Association will meet at Toronto, April 8, when arrangements will doubtless be made to send two or three representatives to the annual convention of the National Retail Hardware Association, to be held in Milwaukee, Wis., in May. We understand that the prospects are favorable for carrying out the idea of a summer excursion to Montreal in the month of August, as proposed at the recent annual meeting in Toronto.

Hardware Club of New York.

The annual meeting of the Hardware Club, for the election of governors to fill the places held by Thomas F. Keating, Eugene Bissell and R. R. Williams, was held at the club, Saturday, March 20, and these gentlemen were re-elected for another term. A feature of the meeting was the report of the treasurer, A. D. Clinch, which, among other things, showed a loss on house charges for the past year of but $1.84 on a total of about $110,000. This is certainly a great record, and indicates the high standing of the club membership and the admirable management of its finances.

THE GEO. A. LOWE COMPANY, Hardware jobber, Ogden, Utah, has purchased the middle section of what is known as the Simmons Hardware warehouse, which in conjunction with an adjoining iron yard will be used for the storage and handling of iron and steel Bars, Sheets and structural material. In addition to the usual lines comprising a Heavy Hardware stock the company carries a large amount of Wrought Pipe with a shop equipped with Pipe cutting and threading machines.

EDWARD WECK has moved his Brooklyn Cutlery establishment from 387 to 473 Fulton street. He carries a fine stock of high grade Cutlery for retail purposes. This store is in addition to others previously established at 148 Fulton street and 98 Nassau street, New York.

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NEW JOBBERS' CATALOGUES.

THE GEO. WORTHINGTON COMPANY.

THE Geo. Worthington Company, Cleveland, Ohio, has completed and is now sending to the trade its new catalogue containing 2600 pages. The book is very substantially bound in a loose leaf binder, and the company announces that it will issue from time to time new pages covering all changes in lists and goods which customers can insert, thus keeping the catalogue up to date. A price sheet to cover all items in the catalogue is also being issued, which is intended as a general guide, giving the approximate prices at which the goods are offered.

It is obvious that a great deal of time and labor have been expended on the book, which is designed to convey as much information as possible, both general and particular. Tabulated details, approximate weights, &c., with reference to various commodities are given as far as possible on the pages where the commodities are listed, and in connection with certain lines a star system is used to indicate the sizes, &c., regularly carried in stock. A complete index is of course furnished, together with a numerous index of Locks, Latches, &c.

The department list is as follows: Shelf and Heavy Hardware; Tinners' Tools and stock; Builders' Hardware; Carpenters' and Machinists' Tools; Mill, Railroad and Steam Supplies; Hot Water and Steam Boilers and Radiation; Saddlery Hardware and Horse Clothing; Carriage Hardware; Cutlery; Guns and Sporting Goods; Gas and Electrical Fixtures and Supplies. The frontispiece is a series of pictures illustrating the growth of the company from its original small quarters in 1829 to the present extensive establishment.

DUNHAM, CARRIGAN & HAYDEN COMPANY.

The Dunham, Carrigan & Hayden Company, San Francisco, has issued catalogue No. 30, a comprehensive book of over 2000 pages, covering the wide range of goods jobbed by the company. The catalogue has a durable gray canvas binding, and is well printed on thin, tough paper. It is completely illustrated with large, clear cuts and the arrangement of pages, price-lists, &c., is excellent and calculated to facilitate quick and convenient use, besides affording ample margins. Information of value is given in connection with various general lines and in the back is found a section devoted to estimated weights and other data to which reference must often be made by Hardware merchants.

There is an index of 44 pages, thumb indexed, and the various departments are segregated as follows: Mechanics' Tools; Agricultural and Lumbering Tools; Housefurnishing Goods; Builders' Hardware; Electrical Supplies; Metals, Packings, Brass Goods, Pipe Fittings, &c.; Pipe, Steel and Horseshoes; Cutlery and kindred lines; Guns, Sporting Goods and Fishing Tackle. A special feature is made of the company's private brand and trademark, "Clean Cut," which is frequently reproduced in colors. The catalogue is an exceedingly practical and useful one and is sure to be appreciated by the Coast trade.

WOLFF-LANE HARDWARE COMPANY.

The Wolff-Lane Hardware Company, Pittsburgh, Pa., has issued catalogue M, referring to its large jobbing stock of Shelf and Heavy Hardware and allied lines. The book contains close to 1100 pages, and is substantially bound and profusely illustrated, handsome color plates being used in connection with several of the lines, including Paints, Padlocks and Axes. Descriptions of goods are marked by an unusual amount of detail. In the back is found a complete index which is divided into sections, as follows: Tools and supplies; Heavy Hardware; Cutlery, Silverware, &c.; Sporting Goods; Builders', Contractors' and Shelf Hardware; House Furnishings, lighting and heating supplies; Store Fixtures and storekeepers' supplies; Paints and Brushes; Roofing materials, &c., and Harness and horse goods. Accompanying the catalogue is one of the company's postal card rush order books.

PENNSYLVANIA WHOLESALE HARDWARE AND SUPPLY ASSOCIATION.

THE annual meeting of the Pennsylvania Wholesale Hardware and Supply Association was held in New York City, at the Hotel Astor, on the 18th inst. President James N. Kline, Williamsport, was unable to be present owing to illness in his family, and Ralph E. Weeks, Scranton, first vice-president, occupied the chair. The roll call showed the following members in attendance:

Chas. Morgan, C. Morgan's Sons, Wilkes-Barre.
F. A. Phelps and G. W. Lewis, Phelps, Lewis & Bennett Company, Wilkes-Barre.
W. H. Conyngham and Mr. Breese, Pennsylvania Supply Company, Wilkes-Barre.
H. M. Melchoir, Bright & Co., Reading.
Jno. H. Obold, Jno. H. Obold & Co., Reading.
A. B. Stein, Stichter Hardware Company, Ltd., Reading.
W. E. Bittenbender and Harry Murphy, Bittenbender & Co., Scranton.
Ralph E. Weeks, Ralph E. Weeks Company, Scranton.
H. L. Raub and Richard P. Reilly, Reilly Bros. & Raub, Lancaster.
Henry Franklin and George Franklin, Steinman Hardware Company, Lancaster.
A. H. Herr, Herr & Co., Lancaster.
W. H. Taylor, Hazleton Machinery & Supply Company, Hazleton.
Geo. Krause, Geo. Krause Hardware Company, Lebanon.
A. G. Roat and Harry Roat, Roat & Co., Kingston.
G. C. Kline, Kline & Co., Williamsport.

Reports were rendered by H. L. Raub, chairman of the Executive Committee, and by G. C. Kline and A. B. Stein, representing the central and southern branches of the association, respectively. Interesting papers were read by Ralph E. Weeks, on "What Per Cent. of Sales Can Be Expended in Conducting the Exclusive Wholesale Hardware Business in the Territory Members of Our Association Occupy"; by George W. Lewis, on "The Advantage and Disadvantage to Us as an Association in the Maintenance of Prices from the Standpoint of the Manufacturer and the Distributor," and by Richard M. Reilly, on "The Advisability of Appointing a Legislative Committee to Ascertain if Most of Us as Hardware Dealers and Jobbers Are Not Paying Double Taxes in Many Cases, and, If So, Can a Duly Accredited Committee Accomplish Anything in Bettering Such Conditions?" The reading of each was followed by a general discussion.

JAMES N. KLINE.

During the year three valued members of the association passed away—J. M. Kemmerer, Bittenbender & Co., Scranton; H. Grant Driesbach, C. Driesbach's Sons, Lewisburg, and J. C. Bright, Bright & Co., Reading, and appropriate resolutions were adopted.

The following officers were elected for the ensuing year:

PRESIDENT, Ralph E. Weeks, Ralph E. Weeks Company, Scranton.

FIRST VICE-PRESIDENT, H. M. Melchoir, Bright & Co., Reading.

SECOND VICE-PRESIDENT, William Driesbach, C. Driesbach's Sons, Lewisburg.

TREASURER, George D. Krause, Krause Hardware Company, Lebanon. The secretary has yet to be appointed by President Weeks.

The business session was held in the morning, and in the afternoon a very enjoyable luncheon was served, at which the following gentlemen were present as guests of the association: C. W. Asbury, Enterprise Mfg. Company, Philadelphia; T. B. Coles, American Steel & Wire Company, New York; T. James Fernley, secretary treasurer, National Hardware Association, Philadelphia; W. R. Walkley, Peck, Stow & Wilcox Company, New York;

Wm. J. Bruff, Union Metallic Cartridge Company, New York; Charles Aarons, New York Leather Belting Company, New York, and R. R. Williams, Hardware Editor, *The Iron Age*. Informal addresses were made by a number of the guests.

Up to the present time the association has been holding but one meeting a year, but owing to the increased interest manifested by the members it has practically been decided to hold at least two gatherings during the ensuing year.

Here and There in the Hardware Store.

BY SAMUEL MASTERS.

XIII.—VARIOUS MATTERS.

I HAVE sometimes wondered whether a crackerjack salesman made the best sales manager, or whether it would not be to the best interests of a business to keep the best salesman in the ranks where he could achieve results in the way of orders, and place in the manager's chair a man who, while he may lack the personal magnetism or power to sell, may have a larger measure of executive ability. Very often the best salesmen seem to be the least capable of following any settled routine, to say nothing of establishing rules for others. There is a touch-and-go, spur-of-the-moment, catch-as-catch-can element in sales work which would destroy all possibility of order if carried into the house end of the business, and which if followed long enough unfits a man for formality.

More Salesman Than Manager.

A first-class salesman in the managerial chair is constantly alert to assist salesmen in taking orders, will listen with sympathy to the tales of their troubles, and scheme and contrive to devise ways for circumventing competitors. To weak salesmen his assistance is of value, but he often interferes to the detriment of the plans of a good man on the job who is more familiar with the details and conditions. Too often his mind is too fully occupied with the work of selling to pay proper attention to the upkeep of stock, arrangement of goods to save handling, store discipline, the filling of orders, and the multiplicity of other small details which make for proper service.

An Excess of Rule.

On the other hand, there is danger that a man who is weak in sales ability and strong in system will carry his ideas of rule and order to an extreme and unduly hamper the efforts of his men by petty restrictions. I have seen (and who that has been long in business has not?) such a man evolve in time a complicated system of red tape which has been absolutely destructive to business and cause his own downfall.

Telephone Troubles.

Mr. Martin was by instinct a salesman—not an executive officer. The hazards and the triumphs of the game appealed to him strongly, and he spent by far the greater portion of his time in making sales to the detriment of the service. One detail which should have had attention was the telephone service. There were two 'phones in the center of the store, with a boy in attendance, it being his duty to call any salesman asked for, or hunt up a detached salesman if no preference was shown by the inquirer. Usually a prospective purchaser would ask whether the material he desired was in stock, necessitating another wait while the salesman obtained the information. Then the boy got careless, but Mr. Martin would listen to no complaints, as the boy was the son of a friend. Hartman Junior brought the matter to a head one day by telephoning to his own office that he had tried in vain to raise the city store, and asking Mr. Clark to find out why. The boy was found smoking in the alley and was summarily discharged.

Their Remedy.

The next day one of the house men, who was familiar with both stock and prices, was placed in charge of the 'phones, and with Mr. Martin's approval the following letter was sent to all the firm's regular customers:

> **HARTMAN BROTHERS**
> **Hardware and Mill Supplies.**
>
> Ironville, Dec. 10, 1900.
>
> Messrs. JONES & JONES,
> City.
>
> There is a competent salesman in charge of our telephones. He can quote you prices and tell you about deliveries without delay. Please call Judd 900 or 206.
>
> Yours truly, CHAS. MARTIN,
> *Manager of City Stores.*

Stenographers in all departments were pressed into service to get the letters finished quickly, and the ground was covered in a very few days. The only reply that was received was a scrawl across the face of one of the letters, "And we pay for the salesman," which aroused Mr. Martin's ire. The effect was at once apparent, however, in the increased number of telephone orders, which grew from 4 to 10 per day to from 40 to 60 within a month. It was estimated that fully two-thirds of the business thus obtained was additional.

Handling Telephone Orders.

When the telephone salesman took an order he wrote it in a book with perforated order sheets over nonperforated sheets for carbon copies, and so soon as the order was written it was given to the salesman handling the account of the purchaser, who attended to sending and charging the goods. This system was continued until about six months ago, when a branch or private exchange was installed. Now the operator, who has learned the division of the accounts among the salesmen, at once connects the customer to his salesman.

(*To be continued.*)

THE AMERICAN HARDWARE MANUFACTURERS' ASSOCIATION, through its secretary, F. D. Mitchell, is announcing the fact ascertained by inquiry that letters mailed to Germany at the 2-cent rate are dispatched only by steamers able to carry them from the United States direct to German ports and vise versa, while letters sent at the 5-cent rate are transhipped via England or France if quicker delivery can so be obtained.

THE MASSACHUSETTS SAW WORKS, Chicopee, Mass., has recently perfected its Nail sets, using the same tempering process that is used on its Victor Hack Saw Blades. An effective exhibit of these tools was made at the New England Hardware convention at Springfield, Mass. To show the toughness and uniformity of the sets, the company had a man driving them through a piece of iron pipe, which was done without injury to the cupping on the point.

THE jobbing house of Babcock, Hinds & Underwood, Binghamton, N. Y., is issuing a house organ under the suggestive title, "The Plane, a Smoother of Daily Tasks." It is got up in an attractive form, and contains much interesting matter in which an application to the trade may usually be found. It also contains advertisements of lines handled by the company. No. 3, now in hand, is devoted largely to Paints, &c.

THE HURLEY MACHINE COMPANY, Chicago, manufacturer of the Thor Electric Washer and Wringer and the Little Giant Floor Scraper, having outgrown its present quarters, has rented the Hotz & Rehm Building, at the corner of Clinton and Monroe streets, which it will occupy after May 1. In its new location the company will have ample manufacturing facilities, and a large and well furnished display room.

THE BOOKKEEPING SYSTEM OF C. H. CURTISS & CO.

THE bookkeeping system employed by the Hardware firm of C. H. Curtiss & Co., Tarrytown, N. Y., is an excellent example of the intelligent application of long established methods. It is careful and systematic, but so simple and direct that it could be readily taken up and carried on by anyone versed in the fundamental principles of accounting. The books required comprise cash sales book, day book, index to day book, journal, containing press copies of invoices rendered monthly, general ledger, purchasing ledger, invoice file and cash book.

Cash Sales.

All cash sales, whether of large or small amounts are entered by the one making the sale in the cash sales book, which is kept in a convenient place on the counter. An ordinary canvas covered blank book, perhaps 5 x 10 in. in size, is used for this purpose. Change is made from

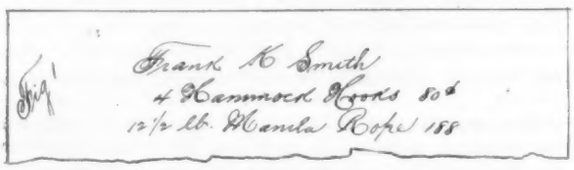


Fig. 1.—Charge in Day Book.

the cash drawer, and book and drawer are examined by the bookkeeper at the end of the day, to see that they are in balance. In the general cash book, the total of each day's cash sales appears merely as a lump sum.

Credit Sales

are written down in a day book, with numbered pages, somewhat similar to the cash sales book, which is also kept in an accessible place, near the wrapping counter. A specimen entry is shown in Fig. 1. It is necessary, of course, to have two of these books, so that there may always be one outside, if the bookkeeper is working on the other in the office. An alphabetical index book is used in connection with the day books, to assist in making up the monthly bills. All accounts have their place in the index, and every night the bookkeeper goes through the charges of the day, and enters under the account names the number of the day book page on which charges to the various accounts appear. The method of doing this will be understood by examining Fig. 2, illustrating a portion of an index page. When making out the monthly invoice or statement of an account, it is only necessary

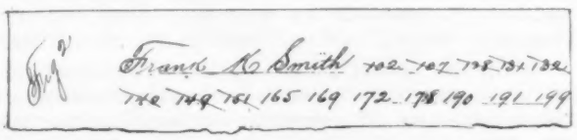


Fig. 2.—Method of Entering Charges in Index Book.—When Posted They Are Lined Out as Indicated.

to turn to the day book pages on which charges to this account are recorded, and copy them onto the bill, at the same time checking off the numbers in the index.

All bills, before they are sent out, are press copied, in a regular letter press copying book, thus giving the firm an accurate record of invoices sent to customers, and making it possible to get at individual items without going back to the day book. The journal is, in fact, a complete copy of the day book charges, distributed under the proper account heads. From the journal postings are made to the different accounts in the general ledger, monthly totals only being posted, however, with reference showing the journal page on which the detailed items may be found.

The General Ledger

contains all customers' accounts as well as all the operating accounts of the business, such as merchandise account, general expense account, including rent, salaries, &c., stable expense account, personal accounts, &c. General ledger accounts are not itemized. They show only sum totals to be charged or credited, which are posted monthly from the cash book. No ledger accounts are kept with banks. All necessary records of deposits and withdrawals are afforded by check books and bank books.

The Cash Book

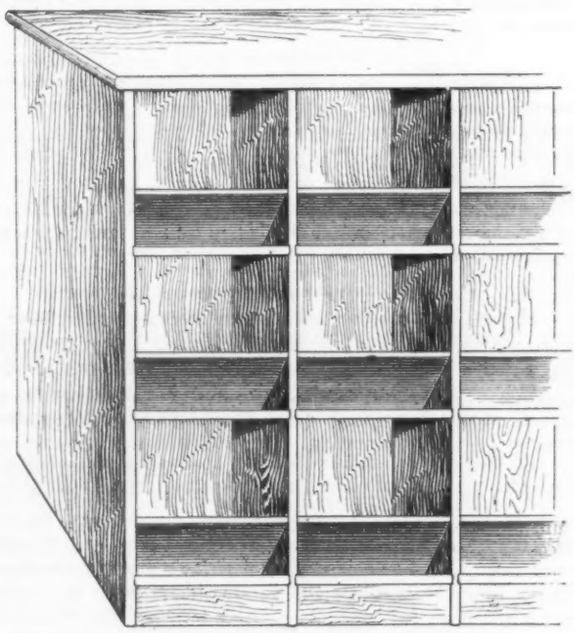
is kept as usual, with debit and credit pages opposite each other. On the debit side appear all payments received on open accounts, and all cash sales, the latter, as already explained, being entered for each day in a lump sum. On the credit side entries are made of all amounts paid out either by cash or check for merchandise, expenses or personal account.

Purchasing Ledger and Invoice File.

A feature of the system which remains to be described is the method of handling accounts with houses from whom the firm is a buyer. Purchasing accounts are kept in a separate ledger, which is naturally much smaller and more convenient than the general ledger. Invoices received are placed on a file, where they are kept until the goods come in, and are checked with the goods. The invoices are then transferred to another file for payment, and the amounts are posted to the credit of the consigner on his account in the purchasing ledger, being charged at the same time to merchandise account on the general ledger. After payment, invoices are filed away in a sort of folio binder, where they can be promptly located and referred to if occasion requires.

A COMPACT ARRANGEMENT OF NAIL BINS.

THE Nail bins illustrated herewith embody, among other excellent features, economy of floor space. The Nail counter is 35 in. wide and 15 ft. 4 in. long, constructed of ⅞-in. Southern pine, with a 1⅛-in. maple top. The bins have an apron ½ thick and 4 in. high across the front of each, faced with sheet iron to prevent wear from drawing Nails over them with a Nail Claw. The recess formed by the apron permits resting the end of the scoop when drawing a quantity of Nails and also furnishes a convenient place to stencil the size



Economically Arranged Nail Bins.

of Nails kept in the various bins. There are bins in the counter for 84 different sizes and kinds of Nails, 42 bins on each side. The openings are 12 in. high and wide and 16 in. deep, three tiers high. The bins have been in use in a Massachusetts store for 12 years; no trouble has arisen from mixing sizes, and the arrangement has proved entirely satisfactory in all respects.

PARCEL POST.

BY W. P. BOGARDUS, MT. VERNON, OHIO.

How far can our Government enter into competition with the people? How far can the Government go in assuming control of the transportation of merchandise? How far will the people permit the centralization of power in the general Government?

A recently elected United States Senator from one of the largest States in accepting his election, announced his position as being in favor of a strong central Government, and proclaimed that he was in thorough sympathy with the ideas of Government as laid down by Alexander Hamilton, and incidentally expressed himself as favoring parcel post as a means of reducing the deficit occasioned by the adoption of rural free delivery. I am glad that in the discussion of the question the fact has become an acknowledged one that the installation of rural free delivery has resulted in a deficit in the Post Office Department.

The Rural Free Delivery Experiment.

When first suggested to Congress it was claimed that the scheme would be self-supporting; that the additional mail that would be sent would justify the claim of the Department, and in order to demonstrate the correctness of their claim they asked Congress to give them a small appropriation of $10,000. A demonstration was made under the most favorable conditions that could be secured. Whether it was a success, or not, I am unable to say. Only this, we are sure of: Politicians saw in rural free delivery a fine chance to get votes, and a system has been saddled on the country whereby 18,000,000 people have privileges that are denied to others, in this, that a circular can be sent over a route of 24 miles for 1 cent, while a resident of a town, or city, will have to pay 2 cents to even send a circular into the next block.

And, further, the 67,000,000 people who do not have the privileges of rural free delivery are required to help pay the deficit occasioned by the scheme.

Will History Repeat Itself?

Now, if it is true that the establishment of a rural free delivery has resulted contrary to the expectations of the Post Office Department, in a very large deficit, instead of a self-supporting arrangement, have we any reason to believe that the scheme now proposed of having a test route for parcel post will be any more successful?

Is there any reason to believe that the test will be made in any other spirit than as an entering wedge to help on the establishment of a parcel post system for the entire country? It is hinted that that is the objective point in asking for the test, or trial, on one or two routes.

If such permission is given, will the test be fairly made, or, will some of the most favorable routes be chosen for the test, and a claim made that parcel post is a great success, when, as has been proven in rural free delivery, the claim lacks a justification of facts?

When in answer to a request by the postal employees for an advance in wages, the Postmaster-General told them that he would not recommend any advance in wages until a parcel post had been adopted, what inference could the employees get but that they must work for a parcel post if they expected to get any advance in wages?

A Problem.

In the ordinary route of the rural free delivery the expense connected with the carrying out of the scheme is not met by the income derived from the service. Now, if merchandise that is now carried at 16c. per pound is carried at a loss, how much merchandise should be carried, at a reduction in charges of from 11 to 14 cents per pound, to make up the deficit? You cannot make up a deficit in that manner, for just as soon as you increase the load you must increase the expense for carrying it, and if you increase the expense for doing the work, how are you going to reduce the deficit?

The Post Office officials seem to think that any amount of weight can be put on the rural carriers without extra cost. They do not seem to apprehend the conditions that surround country roads. There is a bitter cry going up from naval officers against the bureaucratic management of the Naval Department. And the charge is made by those high in authority that the management of the Department is on a theoretical basis, and that the theories are not practical, and do not work out for the betterment of the navy.

Is it possible that some of the bureaucrats have made a mistake, and got into the Post Office Department? Theoretical men, who have no business experience, certainly have no right to assume the management of a great department of the Government. Are all the fads and vagaries that are suggested suitable to be adopted by a great department of our Government?

The Adoption of a Parcel Post Means

that the Government will take the goods on the long hauls and the express companies on the short ones. They are doing that now, and the public are giving the cream of the business to the express companies. For they will carry goods on short hauls as cheap as the Government, and there is more assurance that the goods will arrive when carried by the express companies.

We are informed that the parcel post is designed only for the rural routes. How long do you suppose the public will be satisfied with that limited service? If a package of 11 lb. can be sent on a rural route 24 miles for 25 cents, will the charge of $1.32 be satisfactory when a package of similar weight is sent to an adjoining town say 5 miles away? Will not that injustice of the system be so apparent that Congress will be compelled to extend the system? And if the system is enlarged to cover rural routes what will be the deficit?

Nearly $17,000,000 is the deficit in the Post Office Department owing to rural free delivery. Now, if such a deficit is made when merchandise is carried at 16 cents per pound, will there be any hope of wiping out the deficit by increasing the amount of merchandise carried and reducing the rate for carriage to 5 cents for the first pound and 2 cents for additional pounds?

What mental attributes must a man have to advance such a proposition? You have all heard of the man who sold sugar at cost, and when asked how he could afford to do so, replied: "It is owing to the quantity I sell." Those who favor parcel post seem to use that kind of argument, that the deficit can be paid off by handling a large amount of merchandise at a loss. At present

The Ratio of Expense to Income on Rural Routes Is as Four to One

with merchandise at 16 cents per pound. Now reduce the cost on merchandise to 5 cents for the first pound and 2 cents for every additional pound, and I think the question will be: How long can the department stand the strain? The Postmaster-General says that if each carrier on the 30,000 rural routes should carry each day 55 lb. of merchandise more than he now carries, and at no further expense, it is estimated that $15,000,000 would be realized. That would mean that on the rural routes in addition to what is already handled there would be a further burden of 1,650,000 lb. put on the carriers each day. Does any one suppose that that burden would be evenly divided?

Some carriers would not take out once a week the extra burden. Others might have to carry 10 or 20 a day. How long would it be before they would demand extra compensation and get it? And then, where would your deficit be? With such a basis, and with the "ifs" and "estimates" is it any wonder that there is a larger deficit in the department than was ever known?

This proposition of the Postmaster-General is based on carrying the 55 lb. on each rural route every day, and but for a small charge for cancellation of additional postage by fourth class Postmasters there would be no extra charge for the additional work, and the income would be all profit, for the service would be confined to bona fide merchants and patrons of rural routes. How long would a law stand that discriminates between citizens, and undertakes to say who shall send merchandise over rural routes?

Parcel Post Is the Most Extravagant Form of Public Expenditure

ever authorized by any country. We have never yet found a government making a report of the receipts and expenditures in relation to this matter. When parcel post was first adopted in England reports were made, but in a very few years the deficit became so large that all reports in relation to parcel post were discontinued.

But it is said that second-class matter is carried at a loss, and nothing is said about that. That is true, but papers and magazines are the educators of the people. They have done more to expose evil and help purify the commercial world and give us the proper point of view of our duty to our neighbors than any other one thing. What help will the people get by having merchandise sent through the mails at less than cost? Will their minds be improved? Will they be better citizens? Not a bit of it. But greed will fill their souls, and they will shrivel to half the normal size of a man.

Advantage to the Retail Trade.

There is much stress laid on the statement that parcel post would be of great advantage to the retail trade. No one who has any conception of the relation the retailer has to his customers would ever dream of making such a claim. The retail trade is not done at arm's length. The customer and the dealer must be seen and inspected. The personality of the merchant has a very important place in the consummation of a sale.

The expectation that the farmer will sit at home and order his supplies by mail to come by rural free delivery is a vain expectation, and is not justified by any experience the retail trade have ever had. The retail trade would naturally oppose a parcel post on rural routes for the reason that goods ordered to be sent by parcel post would have to be prepaid. That would mean a reduction in the prices that the retail dealer could ill afford to make.

The Catalogue Hous s are Advocating Parcel Post

because they know it will benefit them. What benefits the catalogue house injures the retail dealer. There is an ir-

repressible conflict between them. If the reports are true the catalogue houses are organizing to invade the country districts, with skilled salesmen and wagons loaded with samples. They have schools of salesmanship and are drilling the men whom they expect to send out with the wagons, and their success and continued employment will depend on their show of ability as salesmen.

With intelligent salesmanship on the part of the men employed by the catalogue houses and samples of goods, and personal contact with the farmer in his home you can readily see that this is no time to fold our hands and go to sleep.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

TAYLOR MFG. COMPANY, Hartford, Conn.: Catalogue No. 10, relating to Can and Bottle Openers, Tack Pullers, Burglar Proof Door Securers, Ventilating Window Fasteners, Ventilating Sash Locks, Combination Key Rings, Carpet Stretchers and Tack Holders and Double End Lathe Tools.

MAPLE CITY MFG. COMPANY, Monmouth, Ill.: Catalogue No. 10, devoted to Howland Pump Oilers, Engineers' Drip Oilers, Valve, Bench and Railroad Oilers, Tallow Pots, Fillers, Engineers' Sets, Torches, Lamps, &c.

AMERICAN STEEL & WIRE COMPANY, Chicago: Illustrated circular price-lists referring to Steel Gates and repairs for Gates and Stretchers.

ELMORE TOOL MFG. COMPANY, Hartford, Conn.: Illustrated catalogue No. 10 for 1909, describing and listing a line of Machinists' and Carpenters' Tools and Hardware Specialties, including Screwdrivers, Awls, Punches, Sets, Chisels, Gimlets, Reamers, Countersinks, Pliers, Nail and Tack Pullers, Hatchets, &c.

O. J. CHILDS COMPANY, Utica, N. Y.: Illustrated circulars referring to Fire Extinguishers.

STEVIC MFG. COMPANY, Detroit, Mich.: Illustrated circular, with price-list, referring to the Stevic Adjustable Vehicle Wrench.

W. W. LAWRENCE & Co., Pittsburgh, Pa.: Initial number of house organ entitled "The Enthusiast," published with the object of conveying information and interesting merchants and their salesmen in the sale of the company's Paints and Specialties.

SHARON HARDWARE MFG. COMPANY, Sharon, Pa.: Catalogue illustrating Barn and Warehouse Door Hangers, in flexible, trolley, plain and common patterns.

FORT WAYNE REFRIGERATOR COMPANY, Fort Wayne, Ind.: Illustrated catalogue with extended descriptive matter referring to Pearl Steel Glass Refrigerators.

LUTHE HARDWARE COMPANY, Des Moines, Iowa: Edition A pages for insertion in the company's general Hardware catalogue No. 1.

HARBER BROTHERS COMPANY, Bloomington, Ill.: Illustrated catalogue covering an extensive line of Vehicles.

JOHN SIMMONS COMPANY, 104-110 Center street, New York: 16 page illustrated descriptive booklet relating to Sphinx Noiseless Awning Fittings.

WOOSTER BRUSH WORKS, Wooster, Ohio: Thirty-first edition of illustrated catalogue and trade price-list of Brushes.

BURLINGTON BASKET COMPANY, Burlington, Iowa: Illustrated catalogue of Willow Baskets, Hampers, Basket Trunks, &c.

BRUNSWICK-BALKE-COLLENDER COMPANY, 29-35 West Thirty-second street, New York: Illustrated booklet referring to Sargent Patent Seamless Porcelain Refrigerators.

SOUTHERN SKEIN & FOUNDRY COMPANY, Chattanooga, Tenn.: Illustrated catalogue No. 1 referring to Cast and Steel Wagon Skeins, Cast Anvils, with steel face, Crescent Sad and Tailor Irons, Tire Shrinkers, Tire Benders, Copying Presses, Tuyere Irons, Jack Screws, Blacksmiths' Cones or Mandrels, Swage Blocks, Wagon Hardware, &c.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM MCCREEDY & MYERS, Rochester, Mich., who have bought the Hardware, Stove, House Furnishing, Implement, Paint, Sporting Goods and plumbing business of H. L. Wood & Son.

FROM HARRIS-BADGE HARDWARE COMPANY, Brozoria, Texas, which is opening for business.

FROM POTTINGER BROS. HARDWARE COMPANY, Texhoma, Okla., whose store has been destroyed by fire.

FROM BROWN HARDWARE COMPANY, Lake Arthur, N. M., which has been incorporated with a capital of $20,000, to deal in Hardware, Stoves, Implements, Paints, &c.

FROM N. C. HINSDALE, Ox Bow, N. Y., who was burned out last month and has now reopened his store with an enlarged stock.

FROM DES ROCHERS COMPANY, Montreal, Quebec, successor to Geo. U. Des Rochers, which will continue to handle Hardware, Mill Supplies, Paints, Glassware and Sporting Goods.

FROM THE FRANK RICHARD & GARDNER COMPANY, 160 South street, New York, which has just opened a store and will carry a complete line of Hardware, Marine and Contractors' Supplies.

Farm Implement and Vehicle Directories.

THE Farm Implement News Company, 701 Masonic Temple, Chicago, Ill., issues Vol. XIX, 1909 revision of its Buyers' Guide, relating to Farm and Garden Implements, Wagons, Carriages and other Vehicles, Gasoline Engines, Windmills, Pumps, Dairy Apparatus, Wire Fencing and accessory lines. Of the 480 pages, the first 312 contain classifications of articles, manufacturers and trade names, followed by Vehicle classification of nearly 50 pages, including Automobiles, Motor Cycles and Vehicles, Sleds, Buggies, &c. The remaining space is arranged alphabetically by States and post offices, giving names of goods, branch houses, sales transfer, distributing and export agents and jobbers, in connection with each manufacturer in this line in the United States and Canada.

The Midland Publishing Company, St. Louis, Mo., has issued the sixth edition of the Implement Blue Book, a a directory of Implement and Vehicle manufacturers. In addition to the regular lists collected under the names of goods, the book contains an appendix giving a list of the manufacturing concerns, the officers, &c., and their complete lines; also a list of branch, jobbing and transfer houses for the sale and distribution of the lines covered, both in the United States and Canada.

C. E. Bonner Mfg. Company.

The C. E. Bonner Mfg. Company, Chrisman, Ill., which is manufacturing the Victor pry bar and nail puller, is now making the tool in the 14-in. as well as the 23-in. size. It is made of tool steel and can be sharpened to one's notion and used as a chisel. It is claimed that the tool pulls the nail straight out, will not split, break or mar boards and is especially adapted to taking down scaffolding. The company is also making its box opener with chisel point and hammer head in 4¾, 7½ and 9 in. sizes, the 9 in. size only having heretofore been manufactured.

The Republic Metalware Company.

The Republic Metalware Company, Buffalo, N. Y., has added to its business a department for the lithographing and printing of tin and other metals, and is now prepared to do this work for the trade. In the company's lithographing plant it will make all kinds of metal packages, such as baking powder, coffee and spice cans, lard pails and seamless boxes for the drug trade.

B. F. Elwell Glue Company.

The B. F. Elwell Glue Company, Rockport, Mass., who for more than 25 years has been manufacturing liquid fish glue, is now selling to the trade direct. Its line for family use is a complete one and particularly adapted for the retail hardware trade. For mechanical uses the glue is put up in tin cans, kegs and barrels.

New Model Rotameter.

The Kahn Company, 194 Broadway, New York, has added to its line of instruments of precision the improved Rotameter, No. 5230, here shown actual size. It is designed for ascertaining in advance the time required for machining a piece of work in lathe or boring mill, for instance, by determining the number of revolutions per minute required and also the feed per revolution. It is especially recommended by the manufacturers to users of high speed steel who require measuring instruments of much greater range. The outer dial is graduated by eighths of an inch to 12 in. The small dial on the right has a range of 10 ft. by single feet and the left dial 100 ft. by 10-ft. units. A feature of this Rotameter is that all three hands may instantly be set back simultaneously to zero by a slight pressure on the crown. The mechanism is actuated by moving the small bottom wheel over the surface to be measured. A similar Rotameter is made, No. 5231, which registers to 1000 ft. Both are finished in polished nickel.

Three-Dial Rotameter with Instantaneous Setback.

G. Haarmann & Son.

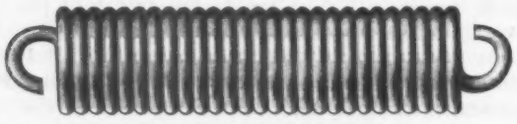
G. Haarmann & Son, Holyoke, Mass., manufacturers of metal ceilings, fire escapes, wrought iron fencing, &c., are making a specialty of their park or lawn settees, which are supplied in 4 or 5 ft. lengths. The seat and back are made of 16 hardwood slats, the top one 3 x ⅞ in. and the others 2 x ⅞ in., bolted to the frame at the ends with 5-16 round head bolts. There is an iron strap in the center of the seat to prevent sagging. The frame and legs are of 1½ x 5-16 iron, with two 2 x ⅞ hardwood braces between the legs. A special feature is the formation of the feet, which are loops in the frame, and combine strength and elasticity, the outer and inner segments bearing upon each other so as to prevent settling of the frame. The manufacturers will send samples of the settee if desired.

Truss and Cable Fence.

The Wright Wire Company, Worcester, Mass., has purchased the patent rights, machinery and good will of the Truss & Cable Fence Company, Cleveland, Ohio, and will continue the manufacture of truss and cable fence in its various sizes for railroad, farm, park and lawn fence and for trellis work. The company has established a new plant at its Palmer, Mass., wire mill, and will produce a superior fabric galvanized after weaving, built on the same lines as formerly, but made from a grade of hard drawn steel wire of very high tensile strength. There are no sharp, short twists or bends in truss and cable fencing, and the wires composing the strands are laid together like a wire rope in such manner that extra stiff wire may be used in its construction. The fence is designed on mechanical lines for great strength and to preserve the fiber of the wire. It is made in continuous lengths and put up in compact coils which are easily handled, and which occupy very small space in storage. The point is made that it may be used in such combinations of horizontal strands as will best suit the purpose, from single strands which serve as a warning to "keep out," to a permanent division fence which will be very substantial and last for many years. If in the course of years any part of a strand is in need of repair this may be quickly done at very small expense by removing a section and putting in a new piece. The truss and cable fence will be made by a company experienced in the manufacture of wire rope, and the knowledge of materials and strains required in that business will be applied to the new line.

Goff's Patent Hammock Spring.

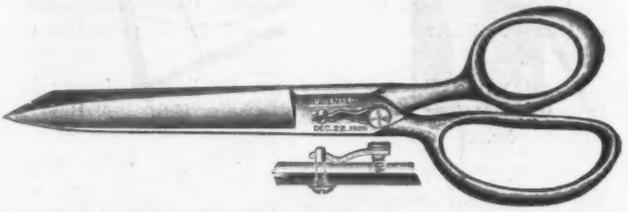
The East Hampton Bell Company, East Hampton, Conn., is manufacturing Goff's patent hammock spring, which is designed with ample strength so that it cannot break or set, and also to give it general durability. In addition to the usual comforts attending the use of a spring with hammocks, it is pointed out that on motor boats, yachts and other vessels the device is a preventive of seasickness.



Goff's Hammock Spring.

Acme Adjustable Spring Tension Shears.

The Acme Shear Company, Bridgeport, Conn., has just patented and is now putting on the market the new type of shears here shown. The principle applied in their construction is that of a lever. The tension of the shears is fitted with a spring device, as illustrated, so that they may be made to run to suit each individual user merely by the turn of a thumb screw. Attention is also called to the further advantage that the shears may be taken apart, the blades oiled and cleaned and then reassembled without any tools and with very little trouble.



Acme Adjustable Spring Tension Shears.

Double Delight Freezer.

The accompanying illustration represents the Double Delight ice cream freezer, which is being put on the market by the H. D. Smith & Co., Plantsville, Conn. It is light and compact, measuring 11½ in. long, 6 in. wide and 6½ in. high. The outer can is of heavy galvanized sheet steel, with a cover to keep the heat out and the cold in. There are two round inner cans made of heavy tin with dashes of retinned steel; each holds 1 quart,

Double Delight Freezer.

this giving the freezer a capacity of 2 quarts of ice cream of different kinds. The round cans are locked together by slots so that both are turned by the one crank. The manufacturers call attention to the fact that the cans present a large freezing surface, and refer to the horizontal feature as an advantage, since even if the ice recedes from the top of the freezer the cans still revolve their entire length in ice.

Automatic Hitch Rein Holder.

Hendricks & Amen, Mendon, Ill., are putting on the market the automatic hitch rein holder here illustrated. It is made of stamped steel, japanned black, and is not unpleasantly noticeable when attached with a rivet to

Fig. 1.—Automatic Hitch Rein Holder.

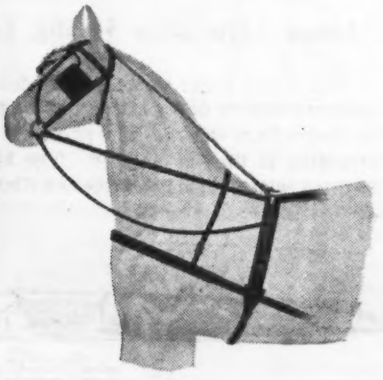


Fig. 2.—Hitch Rein Holder on Harness.

the back band, hip strap, saddle skirt or other place on a harness. The hitch strap is simply inserted through the slot at the top of the holder and run down through the lower end, as shown in Fig. 1, where it is automatically fastened by the weight of the strap. The strap releases itself when pulled straight up. All necessary handling can be done without removing gloves or mittens.

The Ideal 1909 Lawn Mower Grinder.

The Heath Foundry Mfg. Company, successor to the Root Brothers Company, Plymouth, Ohio, is offering the 1909 model Ideal lawn mower grinder, here illustrated. A number of improvements have been made in the machine, so that it now grinds a reel knife to fit the straight or lower blade even though the latter may be bent or sprung. This is the same method as used by repair men, who either file them or grind with emery dust to fit the lower blade. The company states that very few blades are straight when they come to the repair shop to be ground, and it is difficult to straighten them with any kind of a device as they are so springy. With this machine it is claimed a lawn mower can be ground perfectly in 15 min. without removing the reel knife, ratchets or wheels. Special attention is called to the fact that the lawn mower is supported on the spacing

The Ideal Lawn Mower Grinder.

bar and not on the wheels, which are often loose and wabbly. The patented adjustable supports enable the lawn mower to be adjusted perfectly so that an even amount is ground from each blade. The 1909 model has ball bearing grinding wheel and high grade bicycle chain belts. The machine is built far heavier than any previous model and is fully warranted for one year.

Tri-Products Company.

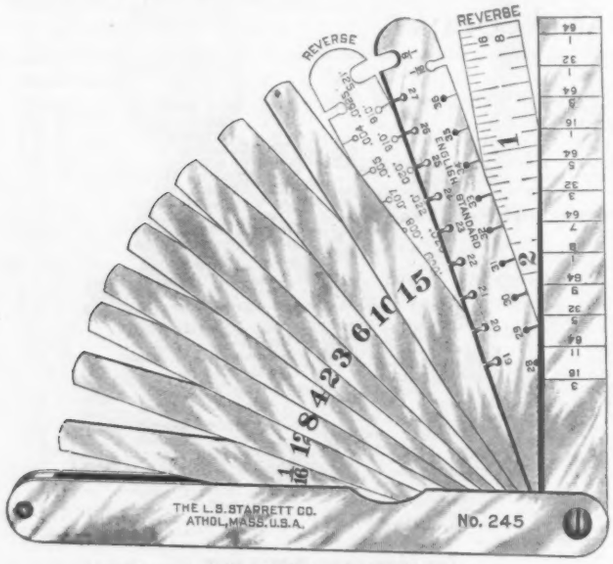
The Tri-Products Company, Olean, N. Y., is putting on the market three products, styled respectively Tri-Oil, Tri-Grease and Tri-Solvent. Tri-Oil is described as a clear and highly refined lubricant which has great power of penetration and is especially adapted for gun cleaning. It is said to be free from acid and white sediment, and is put up in 1½, 3 and 6 oz. bottles to retail at 10, 15 and 25 cents, respectively. It is also packed in quarts, one-half gallons and gallons. Tri-Grease is put up in large tubes retailing at 15 cents. It contains the best known nitro solvents, and is said to be perfectly harmless on any part of a gun. The manufacturer claims that in one cleaning it will remove the most stubborn case of nitro fouling. Tri-Solvent, it is claimed, will remove all kinds of metal fouling from firearms. Its action is declared to be equally effective on nickel and lead, which it dissolves so that they may be readily wiped out of gun barrels. It contains no acid and is free from emery or any other substance injurious to steel. It is packed in ½-oz. bottles retailing at 25 cents, which are said to contain enough of the solvent to clean about 50 rifles.

New Departure Push Button Gong.

The New Departure Mfg. Company, Bristol, Conn., manufacturer of door, bicycle, fire and car bells, has added to its line a new push button door bell, catalogued as No. 70. It has a gong 3½ in. in diameter made of steel heavily nickeled, and is put on the market to meet the demand for a good bell at a low price. It is especially offered in connection with the company's No. 36 push button plate, which is an oval beaded design. The company states that it has also reduced its prices on its No. 41 bell, with 3-in. nickel steel, nickel plated gong, and its No. 43 bell, with 3½ in. gong.

Engineers' Gauge.

The L. S. Starrett Company, Athol, Mass., and 132 Liberty street, New York, has put on the market the engineers' taper, wire and thickness gauge, No. 245, here illustrated. It is particularly serviceable to marine engineers, machinists and others requiring a set of gauges compactly arranged. The taper gauge shows the thickness by sixty-fourths to 3-16 in. on one side, and on the

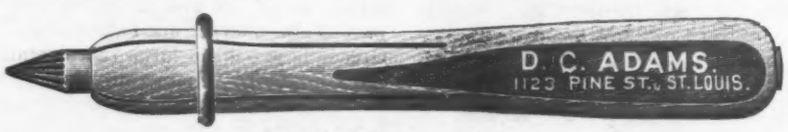


Engineers' Taper, Wire and Thickness Gauge.

reverse side is graduated as a rule 3 in. of its length, reading in eighths and sixteenths of an inch. The wire gauge, English standard, shows on one side sizes numbered from 19 to 36, with two extra slots, one 1-16, the other ⅛ in., and on the reverse side contains the decimal equivalents expressed in thousandths. This gauge also has nine thickness or feeler gauge leaves, approximately 4 in. long, each having a thickness of 0.002, 0.003, 0.004, 0.006, 0.008, 0.010, 0.012, 0.015 and 1-16 in., all folded within the case, which is 4¾ in. long.

Metal Workers' Crayon Holder.

De Witt C. Adams, 1123 Pine street, St. Louis, Mo., is supplying the crayon holder shown herewith, to facilitate the use of a line of metal workers' marking crayons, which are described as genuine (Talc) soapstone. The



Metal Workers' Crayon Holder.

crayons are cut from solid selected stock, and are especially recommended for use in marking and laying off patterns on iron and steel bars, sheets and plates; the advantage claimed being that the mark will not burn off. The crayons are furnished in gross lots, either square or round, one holder being supplied with each dozen crayons. Those for ordinary metal workers' use are packed in strong lock corner, slide cover, wood boxes containing 1 gross, 24 gross comprising a case lot. The larger size for rolling mill use are put up in 200-lb. cases.

Dunlap's Coffee Extractor.

J. S. Dunlap, 215 South Clinton street, Chicago, is putting on the market the coffee extractor shown in the accompanying illustrations. The claim is made that with this invention it is impossible to boil either the coffee grounds or the infusion. Its method of operation will be clear from Fig. 2, which shows where the coffee is put in and indicates the method of brewing the beverage.

Fig. 1.—Dunlap's Coffee Extractor.

When heat is applied the confined air expands and forces the water up through the ground coffee before the liquid reaches the boiling point. When the vessel is removed from the heat the expanded air instantly contracts, forming a partial vacuum which forces the liquid to return through the grounds. The two processes are said to occupy only about 4 min. The point is made that since the liquid passes through the coffee grounds twice there is a considerable economy, since a given amount of coffee will make more extract than when the water passes

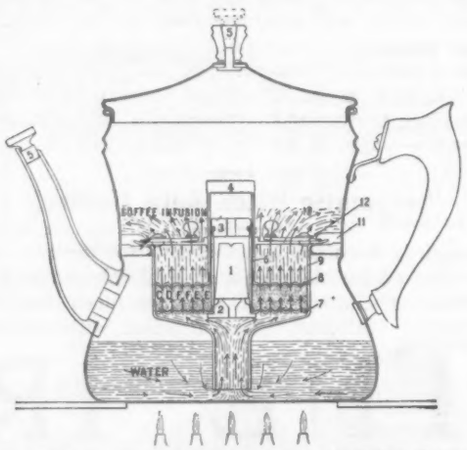


Fig. 2.—Interior Construction of Dunlap's Coffee Extractor.

through but once. Superiority is also claimed for the color, aroma and flavor of the extract made in this way. Cereal coffees, it is said, can be satisfactorily prepared in much less time than ordinarily required. The extractor is made of fine aluminum with a 2 per cent. manganese alloy and is of excellent workmanship. It is asserted that there are no delicate parts to become damaged or deranged. Since boiling the coffee is avoided, washing the machine, it is said, becomes little more than a matter of rinsing as there is no gummy deposit inside the pot.

Searight's Compound Lever Mechanics' Snips.

The Detroit Shear Company, Detroit, Mich., is putting on the market the snips illustrated herewith. They are designed for small work in all mechanical lines, are 7 in. long and weigh only 5 oz., but are claimed to have the

Searight's Compound Lever Snips.

cutting power of a 12-in. tinners' snip. This power is obtained from the compound leverage, and it is said causes them to cut with equal ease anywhere between the blades. The company states that the snips will cut tin, soft steel or galvanized iron up to 26 gauge, and soft brass or copper up to 20 gauge. The blades are curved or formed away from the cutting edges to facilitate cutting circles or square corners. The snips are made of Ibsen steel, tempered and drawn by the Mallett process, and are described as strong, durable and nicely finished. They are especially adapted for the use of dentists, jewelers, electricians, tinners, plumbers, florists, machinists, toolmakers, &c.

Acme Strap and T Hinges and Hasps.

The Acme Steel Goods Company, Chicago, which for many years has been engaged in the manufacture of box straps and other steel specialties, has just put out a new line of wrought steel strap and T hinges and hasps. Light and heavy strap and T hinges from 3 to 12 in. for the light and up to 14 in. for the heavy, are included in the line, together with standard forms of steel hasps. Distribution of this and other products of the company is facilitated by warehouses located at Seattle, San Francisco, Atlanta and New York, in addition to those connected with the Chicago factory.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—	℔ gal. 5 bbl. lots.
Linseed, Western, Raw	.55 @56
State, Raw	.55 @56
City, Raw	.56 @57
Boiled, 1¢ ℔ gal. advance on Raw.	
Raw, Calcutta, in bbls.	.75 @..
Lard, Prime, Winter	.78 @80
Extra No. 1	.56 @..
No. 1	.48 @..
Cotton-seed, Crude, f.o.b. mill	.32½@33
Summer, Yellow, prime	.5.45@5.50
Summer, White	.5.75@5.85
Yellow, Winter	.6.00@6.20
Tallow, Acidless	.56 @..
Menhaden, Brown, Strained	.33 @34
Northern Crude	@..
Southern	.24 @25
Light Strained	.33 @34
Bleached Winter	.36 @..
Cocoanut, Ceylon	℔ lb 6½@ 6⅝
Cochin	℔ lb 6⅞@ 7
Cod, Domestic, Prime	.37 @38
Newfoundland	.39 @40
Red Elaine	.43 @47
Saponified	℔ lb .. @ 6¼
Olive, Yellow	.$1.50@1.60
Neatsfoot, Prime	.57 @..
Palm, Lagos	℔ lb 6⅛@ 6¼

Mineral Oils—	
Black, 29 gravity, 25@30 cold test	℔ gal. .13 @13½
29 gravity, 15 cold test	.13½@14
Summer	.12½@13
Cylinder, light filtered	.20½@21
Dark, filtered	.18 @19
Paraffine, 903-907 sp. gravity	.14½@15
903 sp. gravity	.13½@14
883 sp. gravity	.11 @11½
Red	.13½@14

Miscellaneous—	
Barytes:	
White, Foreign	℔ ton $18.50@20.50
Amer., floated	℔ ton 17.00@18.00
Off color	℔ ton 12.50@15.00
Chalk in bulk	℔ ton 3.00@ 3.40

	℔ gal.
China Clay, Imported	℔ ton 11.50@18.00
Cobalt, Oxide	℔ 100 lb 1.45@ 2.60
Whiting, Commercial	℔ 100 lb 45@50
Gilders	℔ 100 lb .52@ .64
Ex. Gilders	℔ 100 lb .56@ .68

Putty, Commercial—	℔ 100 lb
In bladders	$1.70@2.00
In bbls. or tubs, 100 lb	1.20@1.45
In 1 lb to 5 lb tins	2.65@3.25
In 12½ to 50 lb tins	1.50@1.90

Spirits Turpentine—	℔ gal.
In Machine bbls	40½@41
In Oil bbls	41 @41½

Glue—	℔ lb
Cabinet	.12 @15
Common Bone	.7½@ 9
Extra White	.18 @24
Fish, liquid, 50 gal. bbls., per gallon	.60 @1.20
Foot Stock, White	.12 @14
Foot Stock, Brown	.9 @11
German Common Hide	.10 @12
German Hide	.12 @18
French	.10 @40
Irish	.13 @16
Low Grade	.10 @12
Medium White	.14 @19

Gum Shellac—	℔ lb
Bleached, Commercial	.17½@18
Bone Dry	.22 @23
Button	.20 @30
Diamond I	.29 @30
Fine Orange	.23 @24
A. C. Garnet	.16½@17
G. A. L. Garnet	.16 @17
Kala Button	.12 @13
D. C	.29 @30
Octagon B	.24 @26
T. N	.16 @17
V. S. O	.27 @28

Colors in Oil—	℔ lb
Black, Lampblack	.12 @14
Blue, Chinese	.36 @46
Blue, Prussian	.32 @36
Blue, Ultramarine	.13 @16
Brown, Vandyke	.11 @14
Green, Chrome	.12 @16
Green, Paris	@24
Sienna, Raw	.12 @15
Sienna, Burnt	.12 @15
Umber, Raw	.11 @14
Umber, Burnt	.11 @14

White and Red, Lead &c.—	℔ lb
Lead, English white, in Oil	.10⅛@10⅜
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	6¾
Dry and in Oil, 25 and 50 lb kegs	7
Dry and in Oil, 12½ lb kegs	7⅛
In Oil, 25 lb tin pails	7⅛
In Oil, 12½ lb tin pails	7⅜
In Oil, 1, 2, 3 and 5 lb tin cans, ass't	8¾
Red Lead and Litharge:	
In 100 lb kegs	7
In 25 and 50 lb kegs	7¼
In 12½ lb kegs	7½
In lots of less than 500 lbs, ½¢ ℔ lb advance over above prices of White and Red Lead and Litharge.	
Lead, American. Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	

Zinc, Dry—	℔ lb
American, dry	5⅛@ 5⅝
Red Seal (French process)	6¾@ 7
Green Seal	7¼@ 7½
German Red Seal (French process)	7 @7¼
Green Seal	7½@ 7⅝
White Seal	8¼@ 9
French, Red Seal	8⅝@ 8⅞
Green Seal	10⅜@10⅝

Dry Colors—	℔ lb
Black, Carbon	.6½@10
Black Drop, American	.3½@ 8
Black Drop, English	.5 @15
Black, Ivory	.16 @20
Lamp, commercial	.4 @ 6
Blue, Celestial	.4 @ 6
Blue, Chinese	.30 @31
Blue, Prussian, Domestic	.28 @30
Blue, Ultramarine	.5 @15
Brown, Spanish	½@ 1
Carmine, No. 40	.$3.00@3.10
Green, Chrome, ordinary	.3½@ 5
Green, Chrome, pure	.17 @25
Ocher, American	℔ ton $12.00@15.00
American Golden	.4 @ 5
French	.1¼@ 2
Foreign Golden	.3 @ 4
Orange Mineral, English	.10 @12
French	.12¾@13
German	.12 @13
American	.8½@10
Red, Indian, English	.5 @ 7
American	.3 @ 3¼
Red, Turkey, English	.4 @10
Red, Tuscan, English	.7 @10
Red, Venetian, Amer.	℔ 100 lb $0.75@1.50
English	℔ 100 lb $1.15@1.60
Sienna, Italian, Burnt and Powdered	.3 @ 9
Italian, Raw, Powdered	.3 @ 7
American, Raw	.2¼@ 3
American Burnt and Pow'd.	.2¼@ 3
Talc, French	℔ ton $18.00@25.00
American	℔ ton 15.00@25.00
Terra Alba, French	℔ 100 lb .80@1.00
English	℔ 100 lb .90@1.00
American	℔ 100 lb, No. 1, .75@ .80
American	℔ 100 lb, No. 2, .60@ .65
Umber, T'key, Bnt. & Pow.	.2¾@ 3
Turkey, Raw and Powdered	.2¾@ 3
Burnt, American	.2 @2½
Raw, American	.2 @ 2½
Yellow, Chrome, Pure	.12⅝@14
Oxide Red, American	.2 @ 7½
Vermilion, English, Imported	@70
Chinese	.$0.90@1.00

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are usually given to larger buyers.

Special Goods.—Quotations printed in small type (Roman) relate to goods of particular manufacturers, who request the publication of the prices named and are responsible for their correctness. They usually represent the prices to the small trade, lower prices being generally obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued annually, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Columbian and Domestic....33⅓%
North's 10%
Upson's Patent, ₱ gro., $29.90....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent....10%
Ives' Stop Bead Screws and Washers 10%
Taplin's Perfection....10%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti-Rattlers—
Fernald Mfg. Co. Burton Anti-Rattlers, ₱ doz. pairs, Nos. 1, $0.75; 2, $0.60; 4, $1.80; 5, $0.50.
Fernald Quick Shifter, ₱ doz. pairs ....$2.00@$3.00

Anvils—American—
Eagle Anvils....₱ lb @8 ¢
Hay-Budden, Wrought....9½@9¾ ¢
Trenton ....₱ lb 9½@9¾ ¢

Imported—
Swedish Solid Steel Paragon, ₱ lb ....10@10½ ¢
Swedish Solid Steel Sisco, Superior, ₱ lb....10@10½ ¢
Peter Wright & Sons, ₱ lb, 84 to 349 lb, 11 ¢; 350 to 600 lb, 11½ ¢.

Anvil, Vice and Drill—
Millers Falls Co., $18.00....15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co....10%

Augers and Bits—
Com. Double Spur....80%
Jennings' Patn., Bright.65&10@70%
Black Lip or Blued...65@65&5%
Boring Mach. Augers....70%
Car Bits, 12-in. twist....40&10%
Ford's Auger and Car Bits....40&5%
Ft. Washington Auger Co., Conard's 35%
Forstner Pat. Auger Bits....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list, 25&7½%
No. 30, R. Jennings' list....50%
Russell Jennings'....25&15&2½%
L'Hommedieu Car Bits....15%
Mayhew's Countersink Bits....45%
Pugh's Black....20%
Pugh's Jennings' Pattern....35%
Snell's Auger Bits....60%
Snell's Bell Hangers' Bits....60%
Snell's Car Bits, 12-in. twist....60%
Snell's King Auger Bits....50%
Swan's ....65&10@70
Swan's, Jennings' Pattern....50%
Wright's Jennings' Bits....50%

Bit Stock Drills—See *Drills, Twist.*

Expansive Bits—
Clark's Pattern, No. 1, ₱ doz., $26; No. 2, $18....60&10%
Ford's, Clark's Pattern...60&5@60&10%
C. E. Jennings & Co., Steer's Pat..25%
Lavigne Pat., small size, $18.00; large size, $26.00....60&10%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dbl. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.75; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames ....20&10%
Universal 20%

Ship Augers and Bits—
Ship Augers....40&10@—%
Ford's ....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 6%
Watrous' ....33⅓&7½%
Snell's 48%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled ....gro. $2.75@3.00
Unhdled, Shldered...gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@31¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Rocket..gro.$11.50@12.00
Elmore Tool Mfg. Co.:
Tinners' and Brad Awls....55&7%
Scratch Awls....60%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights: Per doz.
First Quality....$4.75@5.00
Second Quality....$4.25@4.50
Double Bit, base weights:
First Quality....$7.00@7.50
Second Quality....$6.50@6.75

Axle Grease—See *Grease, Axle.*

Axles—Iron or Steel.
Concord, Loose Collar...4¼@4½¢
Concord, Solid Collar....4½&5 ¢
No. 1 Common, Loose...3½@4 ¢
No. 1½ Com., New Style..4¼@4¾¢
No. 2 Solid Collar....4¼@4¾¢
Half Patent:
Nos. 7, 8, 11 and 12....70%
Nos. 13 to 14....70%
Nos. 15 to 18...70&10@70&10&5%
Nos. 19 to 22...70&10@70&10&5%

Boxes, Axles—
Common and Concord, not turned ....lb., 5@6¢
Common and Concord, turned, lb., 6@7¢
Half Patent....lb., 9½@10¢

Bait—Fishing—
Hendryx:
A Bait....20%
B Bait....25%
Competitor Bait....20&5%

Balances—Sash—
Caldwell new list....50&10%
Pullman ....50&10%

Spring—
Light Spring Balances..60@60&5%
Chatillon's:
Light Spg. Balances....50@50&10%
Straight Balances....40@40&10%
Circular Balances....50&10%
Large Dial....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb.... per lb., 2¼@2½¢

Towel—
No. 10 Ideal, Nickel Plate..₱ gro. $2.50

Beam, Scale—
Scale Beams....40%
Chattillon's No. 1....30%
Chatillon's No. 2....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ₱ doz. $0.80; Tinned $0.85
No. 11 Wire Coppered ₱ doz. $1.15; Tinned $1.20
No. 10 Wire Tinned....₱ doz. $1.50

Beaters Egg—
Dover Stamping & Mfg. Co.:
Genuine Dover, per gro., No. 1, Tumbler Size, $1.50; No. 2, Family Size, $7.50; No. 3, Extra Family Size, $34.00; No. 4, Hotel Size, $30.00.
Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd, $0.80; No. A, Jap'd, $1.15; No. B, Jap'd, $1.85; No. 6, Jap'd, $1.65.
Lyon, Jap'd, per doz., No. 2, $1.35.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.

Bellows—
Blacksmith, Standard List:
Split Leather....60&10@65%
Grain Leather....50@30&10%

Hand—
	6	7	8	9	10
Inch..					
Doz..	$5.00	5.50	6.00	6.50	7.50

Molders—
	10	12	14	16
Inch..				
Doz..	$7.50	9.00	12.00	15.00

Net Prices

Bells—Cow—
Wrought Cow Bells....75%
Jersey ....75&10%
Texas Star....50%

Door—
Home, R. & E. Mfg. Co.'s....55&10%

Hand—
Polished, Brass....60@60&10%
White Metal....60@60&10%
Nickel Plated....50&10%
Swiss ....50&10%
Cone's Globe Hand Bells....33⅓@35%

Miscellaneous—
Farm Bells....lb., 2¼@2¼¢
Church and School....60@60&10%

Belting—Leather—
First Quality, Ex. Hy., Strictly Short Lap....60&10%
Standard ....70&10@70&10&5%
Light Double....75&10%
Cut Leather Lacing....45@50%
Leather Lacing Sides, per sq. ft.25¢

Rubber—
Competition (Low Grade), 70&10@75%
Standard ....60&10@70%
Best Grades....40@50%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Green River Tire Benders and Upsetters 20%

Bicycle Goods—
John S. Leng's Son & Co.'s 1908 list: Chain, Parts, Spokes....50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks Tackle—
Common Wooden....75@75&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
See also Machines, Hoisting.

Boards, Stove—
Paper and Wood Lined....55%
Embossed 55%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co....33⅓&10%

Bolts Carriage, Machine, &c.—
Common Carriage (cut thread): ⅜ x 6 and smaller....75&10%
Larger and longer....70&10%
Common Carriage (rolled thread): ⅜ x 6, smaller and shorter, 75&10&5%
Phila. Eagle, $3.00 list...80@—%
Bolt Ends, with C. & T. Nuts, 70&10%
Machine (Cut Thread):
⅜ x 4 and smaller....75&10&5%
Larger and longer....70&10&5%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knobs:
	Inch	3	4	5	6	8
Per doz..		$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:
Inch	6	8	10
Per doz..	$1.20	1.50	2.25

Cast Iron Chain, Flat, Japanned:
Inch	6	8	10
Per doz..	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd, Brass Knobs:
Inch	6	8	10
Per doz..	$0.75	.95	1.25

Wrought Barrel Japanned, 80&10@80&10&5%
Barrel Bronzed....60&10%
Spring ....70&10@70&10&10%
Shutter ....50&5@50&10&5%
Square Neck....75@75&10%
Square ....70&10&10@80%
Ives' Mortise....10%
Ives' Wrought Metal....10%

Expansion—
F. H. Evans' Crescent....40@60%
Richards Mfg. Co....55&10%
Star Expansion Bolt Co.:
Star, Lag Screw Type..60&10&5&2½%
Star, Wood Screw Type....40%
Star, Machine, Single Wedge....60%
Star, Machine, Double Wedge....60%
Steward & Romain Mfg. Co.:
Style No. 13, Double....60%
Style No. 1, Single....60%
Style No. 100, Dbl. Jaw, Single..55%
Lag Screw....66⅔%

Plow and Stove—
Plow ....65&5@70%
Stove ....85@85&5%

Tire—
Common Iron....80%
Norway Iron....80%
American Screw Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Bay State, list Dec. 23, '99....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Eclipse, list Dec. 23, '99....80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 23, '99....80%
Norway Phila., list Oct. '84....80%
Eagle 82½%
Shelton Co.:
Tiger Brand, list Dec. 23, '99...80%
Phila., Eagle, list Oct. 16, 1884..82½%
Upson Nut Co.:
Tire Bolts....72½%

Borers, Bung—
Borers Bung, Ring, with Handle:
Inch....	1¼	1½	1¾	2
Per doz...	$4.80	5.60	6.40	8.00
Inch....	2¼	2½		
Per doz....	$8.65	11.50		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.75; No. 3, $2.50 each....25%

Boxes, Mitre—
C. E. Jennings & Co....25%
Langdon, New Langdon and Langdon Improved, 20&10%; Langdon Acme ....15&10%
Perfection 40%
Seavey 45%

Braces—
Common Ball, American..$1.50@$1.75
Barber's ....50&10&10@60&10%
Fray's Genuine Spofford's....60%
Fray's No. 61, 166, 206, 614....50%
C. E. Jennings & Co....50&5%
Mayhew's Ratchet....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces....25&10%
P., S. & W. Co., Peck's Pat....60&10%

Brackets—
Wrought Steel....80@80&5%
Bradley Metal Clasp...80&10@80&10&5%
Griffin's Pressed Steel....75@75&10%
Griffin's Folding Brackets....70&10%
Stanley's Pressed Steel....80%
Stanley's Folding Brackets..70&10&5%
Taplin Victor Handy Egg Beater Bracket ....₱ doz. $1.50

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co....75&20%
Wire Goods Co....75%

Buckets, Galvanized—
M'fr's list, price per gross.

Quart..	10	12	14
Water, Light..	$28.35	30.75	34.75
Water, Ex. Hvy..	46.85	49.35	53.25
Fire, Rd. Btm..	33.50	35.90	39.90
Well	37.35	41.35	45.35

10&7½&5&5%

Bull Rings—See *Rings, Bull.*

Butts—Brass—
Wrought, High List, Oct. 6, '06.65%
Cast Brass, Tiebout's....40&10%

Cast Iron—
Fast Joint, Broad....40&10@50%
Fast Joint, Narrow...40&10&50%
Loose Joint....70&10@75%
Loose Pin....70&10@75%
Mayer's Hinges....70@70&5
Parliament Butts....70@70&5

Wrought Steel—
BRIGHT.
Light Narrow, Light Reversible ....75&5%
Reversible and Broad.75&10%
Loose Joint, Narrow, Light Inside Blind, &c....75%
Back Flaps, Table Chest.70%
BRONZED.
Light Narrow, Loose Pin..55%
Light, Loose Pin, Ball Tip.65%
Broad 55%

Extra, 10@—%

Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900 ..... 30%
Hendryx Bronze: Series 700, 800.... 30%
Hendryx Enameled..... 35%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong, per 100 lb., $3.50@$3.85
Sharp, 1 prong, per 100 lb., $4.00@$4.35
Burke's, 1 pg. Blunt Toe, 3¾¢; 2 pg. Blunt Toe, 4¼¢; 1 pg. Sharp Toe, 4¼¢; 2 pg. Sharp, 4¾¢; Blunt Heel, 4¼¢; Sharp Heel..... 4¾¢
Lautier, Blunt, 4@4¼¢; Sharp, 4½@4¾¢
Perkins', Blunt, ℔ lb, 3.65¢; Sharp, 4.15¢

Can Openers—

See *Openers, Can.*

Caps, Percussion—

Eley's E. B..... 52@55¢
G. D..... per M 35@45¢
F. L..... per M 40@48¢
G. E..... per M. 48@50¢
Musket ..... per M 62@63¢

Primers—

Berdan Primers, $2 per M.. 20¢@—
Primer Shells and Bullets.. 15&10%
All other primers per M. $1.52@1.60

Carpet Stretchers—

See *Stretchers, Carpet.*

Cartridges—

Blank Cartridges:
32 C. F., $5.50..... 10&5%
38 C. F., $7.00..... 10&5%
22 cal. Rim, $1.50..... 10&5%
32 cal. Rim, $2.75..... 10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball.... $1.40
Central Fire..... 25%
Target and Sporting Rifle. 15&5%
Primed Shells and Bullets. 15&10%
Rim Fire, Sporting..... 50%
Rim Fire, Military..... 15&5%

Casters—

Bed ..... 65&10@70%
Plate ..... 60@60&5%
Philadelphia ..... 70&10@75%
Acme, Ball Bearing..... 35%
Gem (Roller Bearing)..... 70&10&10&5%
Steel Gem (Roller Bearing)..... 70%
Standard Ball Bearing..... 45%
Yale (Double Wheel) low list... 40&10%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Proof Coil—

American Coil, Straight Link:

3-16	¼	5-16	⅜	½	⅝
$7.45	4.80	3.85	3.25	3.10	3.00

¾-⅞-1 1⅛ to 1¼ inch.
$2.90 3.00
In cask lots, deduct 25¢.
German Coil..... 70&5%
German Pattern Coil:
6-0 to 1..... 70&10&5%
2 and 3..... 60&10&10@70%
4, 5 and 6..... 50&10@50&10&5%

Halter—

Halter Chains..... 60&5@60&10%
German Pattern Halter Chains, list July 24, '97..... 70&5%
Covert Mfg. Co.:
Halter ..... 35&5%

Cow Ties—

See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6¼—6-3, Straight, with ring. $26.00
6¼—6-2, Straight, with ring. $27.00
6½—8-2, Straight, with ring. $30.00
6½—10-2, Str'ght, with ring. $35.00
NOTE.—Add 2c per pair for Hooks Twist Traces: add per pair for Nos. 2 and 3, 2c: No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c..... 70%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron ..... 60&10&5@60&10&10%
Brass 65%
Safety and Plumbers' Chain. 75%
Gal. Pump Chain.... lb., 4½@5%
Bridgeport Chain Co.:
Triumph Halter and Coil. 35&2½@40%
Triumph Dog..... 50&10@60%
Brown Halter and Coil.... 45@50&5%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion 40%
Oneida Community:
American Halter, Dog and Kennel Chains ..... 35&2½@40%
Niagara Dog Leads and Kennel Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain..... 70%
Universal Dbl.-Jointed Chain.... 70%

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain..... 60%
Pullman:
Bronze Chain, 60%; Steel Chain, Coppered ..... 60&10%
Sash Chain Attachments, per set. .8¢
Aluminoy Sash Ribbon, per 100 ft. ..... $2.00@$5.00
Sash Ribbon Attachments, per set. .8¢

Chalk—

Carpenters' Blue..... gro., 50¢
Carpenters' Red..... gro., 50¢
Carpenters' White..... gro., 40¢

Checks, Door—

Bardsley's 45%
Pullman, per gro..... $54.00
Russwin 33⅓%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools..... 55%
Youths' Chests, with Tools..... 40%
Gentlemen's Chests, with Tools. 30%
Farmers', Carpenters, etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty..... 45%
Tool Cabinets..... 45%
C. E. Jennings & Co.'s Machinists' Tool Chests..... 7½%

Chisels—

Socket Framing and Firmer

Standard List..80&10@80&10&10%
Buck Bros..... 30%
C. E. Jennings & Co.:
Socket Firmer No. 10..... 25&7½%
Socket Framing No. 15..... 25&7½%
Swan's ..... 66⅔@70%
L. & I. J. White & Co..... 30@30&5%

Tanged—

Tanged Firmers..... 30&5@35%
Buck Bros..... 30%
C. E. Jennings & Co. Nos. 191, 181.. 25%
L. & I. J. White Co..... 25&5%

Cold—

lb.
Cold Chisels, good quality. 13@15¢
Cold Chisels, fair quality. 11@12¢
Cold Ch sels, ordinary.... 9@10¢
Elmore Tool Mfg. Co.:
Cold Chisels..... 50&5%

Chucks—

Almond Drill Chucks..... 35%
Almond Turret Six-Tool Chuck..... 40%
Beach Pat, each $8.00..... 35&5%
Empire 25%
Blacksmiths' 25%
Jacobs' Drill Chucks..... 35%
Pratt's Positive Drive..... 25%
Skinner Lathe Chucks:
Independent 35%
Universal, Reversible Jaws..... 35%
Universal, Com. Style Jaws..... 40%
Combination, Reversible Jaws.... 35%
Combination, Com. Style Jaws... 40%
Round Body or Box Body, 2 Chuck Jaws 25%
Geared Scroll Chucks..... 25%
Drill Chucks:
New Model, 25%; Geared Pattern, 25%; Skinner Patent, ... 25%
Positive Drive..... 40%
Planer Chucks..... 20%
Standard 45%
Drill Press Vises..... 30%
Face Plate Jaws..... 35%
Standard Tool Co.:
Improved Drill Chuck..... 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21..... 35%
Scroll Combinations, Nos. 83 and 84 ..... 30%
Geared Scroll, Nos. 33, 34 and 35.. 25%
Independent Iron, Nos. 18 and 318. 35%
Independent Steel, No. 64..... 25%
Union Drill, Nos. 000, 00, 100, 101, 102, 103, 104..... 35%
Union Czar Drill..... 25%
Universal, 11, 12, 16, 17, 13, 14, 15.. 40%
Universal No. 42..... 35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50..... 35%
Steel Face Plate Jaws, Nos. 70 and 72 ..... 30%
Westcott Patent Chucks:
Lathe Chucks..... 50%
Little Giant Auxiliary Drill..... 50%
Little Giant Double Grip Drill... 50%
Little Giant Drill, Improved..... 50%
Oneida Drill..... 50%
Scroll Combination Lathe..... 50%
Whitaker Mfg. Co.:
National Drill..... 25%

Clamps—

Carriage Makers', Star, P., S. & W. Co. 50%
Besly, Parallel..... 33⅓&10%
Hammer & Co.:
Adjustable ..... 20&5%
Carriage Makers' H, P. Screw. 40&5%
Myers' Hay Rack..... 50%
Lineman's Swedish Neverturn..... 65%
Saw Clamps, see Vises, Saw Filers'.

Cleaners, Drain,

Iwan's Champion, Adjustable..... 50%
Iwan's Champion, Stationary..... 40%

Sidewalk—

American Fork & Hoe Co.:
Star, ℔ doz., Socket, $4.00; Shank $3.50
Shank, ℔ doz., X 7½, $3.50; Shank, X 8..... $3.75

Cleavers, Butchers'—

Foster Bros..... 30%
Fayette R. Plumb..... 30%
L. & I. J. White Co..... 30%

Clippers, Horse and Sheep—

Chicago Flexible Shaft Co.:
1902 Chicago Horse, each..$10.75
20th Century Horse, each...$5.00
Lightning Belt Horse, each.$15.00
Chicago Belt Horse, each..$20.00
Stewart's Enclosed Gear Ball Bearing Horse, each..... $7.50
Stewart's New Model Sheep Shearing Machine, each.$12.75
Stewart Enclosed Gear Shearing Machine, No. 8, each..$9.75
} 25%

Clips, Axle—

Regular Styles, list July 1, '05, 80&30&10%

Cloth and Netting, wire

—See *Wire, &c.*

Cocks, Brass—

Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c 75%
Compression Bibbs..... 70%

Coffee Mills—

See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list..... 40%
Leather, Walter B. Stevens & Son's list 40%

Compasses, Dividers, &c.

Ordinary Goods..... 75@75&5%

Conductor Pipe,—

L. C. L. to Dealers:

Gal. Steel.	Charcoal. Copper.
Northeastern:	
70&10@—%	*50&10&7½%* *50&10%*
Eastern:	
75@—%	*50&10&7½%* *50&10%*
Central:	
75@—%	*60%* *50&10%*
Northwestern:	
75@—%	*60%* *50&10%*
Western:	
70&10@—%	*50&12½%* *50&5%*
Tennessee:	
70&10@—%	*50&12½%* *50&10%*
Southern:	
70&10@—%	*50&12½%* *50&5%*
Southwestern:	
70@—%	*50&5%* *50&5%*

Terms, 60 days: 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

L. & G. Mfg. Co.:

Gal.	2	3	4	6	8
Galvanized,ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled..... 10%
Agate Lined..... 10%

Coppers' Tools—

See *Tools, Coopers'.*

Coppers, Soldering—

Soldering Coppers, 3 lb. to pair and heavier, 21½¢; lighter than 3 lb. to pair..... 23½¢

Cord— Sash—

Braided, Drab..... lb. 35¢
Braided, White, Com., Nos. 8 to 12, 22¢; No. 7, 22½¢; No. 6, 23½¢. In lots of 12 doz. or over, 1 cent less per pound.
Cable Laid Italian, lb., No. 18. 37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India..... lb., 11@11½¢
Cotton Sash Cord, Tw'ted. 18@20¢
Patent Russia..... lb.... 20¢
Cable Laid Russia..... lb.... 21¢
India Hemp, Br'd'd..... lb... 21¢
India Hemp, Twisted.. lb. 13@14¢
Patent India, Twisted.. lb... 17¢
Pearl Braided, cotton, No. 6, ℔ lb, 20½¢; No. 7, 19½¢; Nos. 8 to 12, 19½¢, in 12 doz, to 100 doz, lots.
Eddystone, Braided, Nos. 8 to 12, 26¢; 7, 26½¢; 6, 27½¢.
Harmony Cable Laid Italian, Nos. 7 to10..... ℔ lb 23¢
Pullman:
Wire Sash Cord..... 10%
Sash Cord Attachments, per 100.. $2.00
Samson, Nos. 8 to 12:
Braided, ℔ lb., Drab Cotton, 55¢; Italian Hemp, 40¢@50¢; Linen, 65¢; White Cotton, 50¢; Spot Cord..... 50¢
Massachusetts, White... ℔ lb 40¢
Massachusetts, Drab.... ℔ lb 45¢
Phoenix, White, Nos 8 to 12.... 27¢
} 15%
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen....57½¢
See also Chain and Ribbon.

Wire, Picture—

Full Length..... 90@—%
Short Length..... 90&20@—%
Hendryx Standard Wire Picture Cord ..... 90&10%
Turner & Stanton Co. Wire Picture Cord 90%

Cradles—

Grain 50%

Crayons—

White Round Crayons, Cases, 100 gro., $8.00, $8.50, $9.00 and $10.00 according to grade.
Zelnicker's Lumber: ℔ gro.
White and Purple, Indelible....$7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black..... $4.50
Giant Lumber, 5¼ in. x 15-16 in. round, all colors, $12.00; Indelibles, $14.00; Blacks..... $10.00
Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, $2.50; 5 in. x ¼ in. Square, $1.75; 5 x ½ x 3-16, $2.50; 5 x 1¼ x 3-16..... $3.00
Suremark, Black, $2.25; Blue, Red and Yellow..... $2.50

Crooks, Shepperds'—

American Fork & Hoe Co.:
Montana ..... ℔ doz. $4.50

Crow Bars—See *Bars, Crow.*

Cultivators—

American Fork & Hoe Co.:
Victor Garden..... 50&10%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847. ℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor..... ℔ doz. $3.00
Wm. Rogers & Son..... ℔ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co..... 40%
Red Devil..... 60%
B. Mfg. Co..... 40%
Woodward 50%

Meat and Food—

American 30%

Nos.	401	402	403	404	405	406	407
Each	$5	$7	$10	$12	$25	$50	$60

Enterprise:

Nos.	5	10	12	22	32	
Each	$2	$3	$2.75	$4.50	$6	25@25&7½%

No. 202, $1.50..... 40&7½%
P., S. & W. Co.:
Ideal ..... 40@40&5%
Hales ..... 60&5%
Little Giant..... ℔ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

New Triumph No. 605, ℔ doz. $24.00.. 40%
Russwin Food, No. 1, $21.00; No. 2, $27.00; 3, $42.00..... 45&10&10%
$15.00 $18.00
Enterprise Beef Shavers..... 25@30%

Siaw and Kraut—

Henry Disston & Sons:
Slaw and Kraut Cutters..... 35%
Corn Graters..... 30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....℔ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ℔ doz. $4.00

Tobacco—

All Iron, Cheap...doz, $4.25@4.50
Enterprise ..... 25@30%
National, ℔ doz., No. 1, $21; No. 2, $18 ..... 40%

Diggers, Post Hole, &c—

Disston's:
Rapid, ℔ doz., $24.00..... 25%
Samson, ℔ doz., $31.00..... 25%
Iwan's Pat. Post Hole and Well Auger 40%
Vaughan Pattern Post Hole Augers, ℔ doz., $7.00
Perfection Post Hole Diggers, ℔ doz. $8.50
Split Handle Post Hole Diggers, ℔ doz., $7.50
Hercules Pattern, ℔ doz..... $9.50
Kohler's, ℔ doz., Universal, $14.00; Little Giant, $12.00; Hercules, $10.00; Invincible, $9.00; Rival, $8.50; Pioneer..... $7.50
Never-Break Crucible Steel Post Hole Diggers 60%

Dividers—See *Compasses.*

Drawing Knives—

See *Knives, Drawing.*

Dressers Emery Wheel—

Sterling Emery Wheel Dressers..... 35%
Sterling Wheel Dresser Cutters..... 35%

Drills and Drill Stocks—

Blacksmith's Common Drilling Machines ..... $1.50@1.75
Breast, Millers Falls..... 15&10%
Breast, P., S. & W..... 33⅓%
C. & C. Ratchet..... 25%
Reversible Ratchet Die Stocks..... 25%
Goodell Automatic Drills. 50&10&10&10%
Millers Falls Automatic Drills, Graves', per doz., Nos. 1, $4.86; 2, $8.16.
Millers Falls Automatic Drills, 33⅓&10%
Ratchet, Curtis & Curtis..... 25%
Ratchet, Parker's..... 40%
Ratchet, Weston's..... 40%
Ratchet, Weston's, Style H Improved ..... 40@40&5%
Ratchet, No. 012..... 40@40&5%
Ratchet, Celebrated..... 40@40&5%
Ratchet, Whitney's, P., S. & W., 40&10@50%
Whitney's Adjustable, No. 10, $12.00, 33⅓%

Twist Drills—

Bit Stock..... 70@70&10%
Taper and Straight Shank. 65@65&10%

Drivers, Screw—

Screw D'ver Bits, per doz. 45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9 ..... 50%
Buck Bros.' Screw Driver Bits..... 30%
Champion 50%
Disston's 70%
Elmore Tool Mfg. Co.:
Elmore 60%
Hartford 66⅔%
Indestructible ..... 55&7%
Standard Neverturn..... 66⅔%
Star ..... 75&5%
Screw Driver Bits..... 25%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Ford's Brace Screw Drivers.... 40&10%
Gay's Double Action Ratchet..... 35%
Goodell's Auto..... 65@65&10%
Mayhew's Black Handle..... 40%
Mayhew's Monarch..... 40%
Millers Falls, ℔ doz., Nos. 11, $9.95; 12, $13.73; 20, $8.17; 21, $8.46; 41, $13.43; 42, $17.21.
Swan's:
Nos. 7565 to 7568, 60%; No. 7540, 40&10%

Eave Trough, Galvanized—

Territory.	*Gal. Steel.*	*Copper.*
Northeastern..	*75&10&5%*	*50&10%*
Eastern..	*80%*	*50&10%*
Central..	*80&10&5%*	*50&10%*
Northwestern..	*80&10&5%*	*50&10%*
Western ..	*80&5%*	*50&5%*
Tennessee..	*80&5%*	*50&10%*
Southern..	*75&10%*	*50&5%*
Southwestern..	*75&10&2½%*	*50&5%*

Terms.—2% for cash. Factory shipments generally delivered.
Note.—Lower prices are quite general owing to market irregularities.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories: Galv. Steel, Galv. C. I. and Copper.
Sizes 2, 3, 4..... 80%
Sizes 1½, 2½, 3½, 5, 6... 60&10%
No. 26..... 50%
No. 24..... 35%
Copper Elbows..... 50%

Elbows, Stove Pipe—

Edwards, Standard Blue....40&10&10%
Edwards, Royal Blue..... 40&10&10%
Reeves, Dover, Flat Crimp..40&10&5%

Emery, Turkish—

	¼ to ⅝:	½ to 220:	Flour.
Kegs ..... lb.	*5 ¢*	*5¼¢*	*3½¢*
½ Kegs..... lb.	*5¼¢*	*5¾¢*	*3¾¢*
¼ Kegs..... lb.	*5½¢*	*6 ¢*	*4 ¢*

10-lb. cans, 10 in case....6½¢ 7 ¢ 6 ¢
10-lb. cans, less than 10.....10 ¢ 10 ¢ 8 ¢
Less quantity..10 ¢ 10 ¢ 8 ¢

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—
Ford's Auger Bit Extensions....40&5%

Extractors, emon Juice—
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's Jap'd and Galv., 50 & 5%; Bronze and Plated.....50%
Walling's 50%
Upson's Patent.....40%

Cord and Weight—
Ives, ₩ gro., $1.08.....10%
Titan, ₩ gro., $0.66.....10%

Corrugated—
Acme Corrugated Fasteners.....70%

Faucets—
Cork Lined.....50&10@60%
Metallic Key, Leather Lined, ..60&10@70%
Red Cedar.....40&5@40&10&5%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined..50%
John Sommer's Reliable Cork Lined..50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
Self Measuring:
Enterprise, Self Measuring and Pump, ₩ doz., $36.00.....40&10%
Lane's, ₩ doz., $36.00.....40&10%
National Measuring, ₩ doz, $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.....75&10@80%
Lower Grade....75&10&10@80&10%
Gold Medal.....70%
McCaffrey's American Standard, 60&10&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....35½@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.60*	*3.85*	*4.15*	*4.65*

Peck, Stow & Wilcox Co.:

In.	15	17	19	21	24
	$4.00	4.40	4.75	5.50	6.50....30%

Reading Hardware Co.....60%

Fodder Squeezers—
See *Compressors.*

Forks—
American Fork & Hoe Co.:
Iowa Dig-Ezy Potato.....70&5%
Hay, Regular, 3-tine.....45&20&12½%
Hay, Regular, 4-tine.....60&7½&5%
Champion, Hay.....60&12½%
Acme, Hay.....60&20%
Manure, Regular, 4-tine.....65&5%
Manure, Regular, 5 and 6 tine...70%
Champion, Manure.....65&5%
Columbia, Manure.....70%
Acme, 4-tine.....60&10&5%
Round Shoulder Header, 4-tine..65%
Champion, Header.....65%
Dakota, Header.....65%
Kansas Header.....65%
Wood, Barley.....35&5%
Steel, Barley.....66⅔%
Columbia, Spading.....70&7½&5%

Frames— Wood Saw—
White, S'g't Bar, per doz.75@80¢
Red, S'g't Bar, per doz.$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.....	*1*	*2*	*3*	*4*	*6*
Each....	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
} 10&2½%

Gates, Molasses and Oil—
Stebbins' Pattern.....80@80&5%

Gauges—
Marking, Mortise, &c..50@50&10%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Disston's Marking, Mortise, &c..67½%
Wire, Brown & Sharpe's.....33⅓%
Wire, Morse's.....33%
Wire, P. S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....65@65&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush, 25&10@50%
Elwell's 40%

Grease, Axle—
Common Grade...gro.$6.00@$6.50
Dixon's Everlasting, 10-lb. pails, ea, 85¢; in boxes, ₩ doz., 1 lb, $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grinders—
Pike Mfg. Co.:
Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power).33⅓%
Mower Knife and Tool, $5,00..40&10%
Royal Mfg. Co.:
Hand and Foot Power, each, Nos. 01, $1.75; 1A, $2.50; 10, $5.00 .....33⅓%
Sickle Grinders, each, Nos. 20, $5.00; 20A, $6.00; 20A Combined, $6.50 .....40%
Disc Grinders, each, $2.50.....40%

Grindstones—
Pike Mfg. Co.:
Improved Family Grindstones, ₩ inch, ₩ doz., $2,00.....33⅓%
Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted.....40%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....70&10%
Bridgeport Chain Co.:
Triumph Coil and Halters.35&2½@40%
Brown Coil and Halters...45@50&5%
Brown Cow Ties.....50&5@50&10&5%
Brown Tie Outs.....70&10@75&5%
Covert Mfg. Co.:
Web .....30&2%
Jute Rope.....35%
Sisal Rope.....20%
Cotton Rope.....45%
Hemp Rope.....45%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters...45@50&5%
Niagara Cow Ties.....45&5@50&10&5%

Hammers— Handled Hammers—
Heller's Machinists'....55&10@55&10&5%
Heller's Farriers.....40&5@40&10&5%
Peck, Stow & Wilcox Co.:
Crucible Steel.....40&10@50%
Farriers' .....40&10@50%
Riveting .....40&10@50%
Machinists' .....66⅔@5%
Blacksmiths' 50%
Elmore Shoemakers' Hammers.....75%
Fayatte R. Plumb:
A. E. Nail.....40&2½@40&12½%
Eng. and B. S. Hand.50&10&5@60&5%
Machinists' Hammers.....60&10&5%
Rivet and Tinners'.40&7½@40&12½&5%
Victor Magnetic Tack, ₩ gro....$7.75

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10&10%
Over 5 lb., per lb., 30¢.....
Over 5 lb., per lb., 30¢.80&10&10%

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....40%
Fork, Shovel, Spade, &c.:
Long Handles.....40%
D Handles.....40%

Cross-Cut Saw Handles—
Atkins' 40%
Champion 50%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro.$3.00@$3.50
Brad Awl.....gro.$1.65@$1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@ $2.65; Hickory.....$2.15@2.40
Socket Firming, Apple, $1.75@ $1.95; Hickory.....1.60@1.75
Socket Framing, Hickory, $1.60@$1.75
File, assorted.....gro.$1.30@$1.40
Hammer, Hatchet, &c., 60&10@60&10&5%
Hand Saw, Varnished, doz., 80¢ 85¢; Not Varnished.....65@75¢
Plane Handles:
Jack, doz., 30¢; Fore, doz...45¢
Chapin-Stephens Co.:
Carving Tool.....30@30&10%
Chisel .....60@60&10%
File and Awl.....60@60&10%
Saw and Plane.....30@30&10%
Screw Driver.....30@30&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ₩ gro. $0.85@$1.50
J. L. Osgood:
Indestructible File and Tool, ₩ gro., No. 1, $8.00; No. 2, $8.50; No. 3, $9.00; No. 4, $9.50; No. 5, $10.00.....gro. lots 10%
W. A. Zelnicker Supply Co.:
Hammer, ₩ doz., 12 in., $2.00; 14 in., $2,00; 16 in., $2,30; 18 12., $2.50; 20 in., $2.70; 22 in., $3.00; 24 in., $3,30; 26 in., $3.50; 30 in., $3.80.
Sledge, ₩ doz., oval, 30 in., $3.80; octagon, 30 in., $3,80; oval, 36 in., $4.00; octagon, 36 in., $4.00.
Axe, ₩ doz., 28 to 34 in., $5.60; 36 in., $5.80.
Adze, ₩ doz., 36 in., $5,80; 36 in., $7.80.
Pick, ₩ doz., R. R., 36 in., $8.00; coal, 34 in., $5.80.
Hatchet, ₩ doz., 12 to 14 in., $2.00.
} 50%

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00..60&10%
Roller Bearing, No. 11, $15.00, 60&10%
Roller Bearing, Ex. Hy., No. 22, $18.00.....60&10%
Bull Dog, $24.00.....70%
Lane Bros. Co.:
Parlor, Ball Bearing, $4.00; Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion per set of 4 Hangers, complete with track.....$2.25
Barn Door, Standard.....60&10%
Hinged .....net $6.08
Covered .....60&5%
Special .....70&5%
Trolley Hangers and track...50%
Lawrence Bros.:
Cleveland .....70&7½%
Clipper, No. 75.....60%
Crown .....55&10%
Cyclone, No. 40.....net $6.50
Tandem, No. 50.....net $7.50
New York.....55&10%
Trolley, No. 30, ₩ pair.....$1.25
McKinney Mfg. Co.:
Roller Bearing, Nos. 1 and 2..70%
Anti-Friction 60%
Hinged Hangers, King Charm.60%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track, No. 3..$2.25
Roller B'r'g St'l Track No. 12.$2.20
Roller B'r'g St'l Track No. 13.$2.50
Roller B'r'g, Nos. 39, 41, 43, 70&7½%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&5%
Trolley B. D. No. 17, $1.25; F. D. No. 120, $2.25; No. 121, $2.45; No. 150.....$2.50
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&5%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.25
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&7½%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60%
Hinged Tandem No. 46....60&5%
Folding Door B. B, Swivel No. 135 .....40%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing, ₩ doz., 4 in., $12.00; 5 in., $14.00..40&10%
Myers' Stayon Hangers.....60%

Extra 5@10% often given.

Hangers— Garment—
Pullman Trouser, ₩ gro., No. 1 $9.00; No. 4, $24.00; No. 5, $16.50; No. 8, Black Enamel, $7.50; No. 10, $21.00; No. 12, $8.00; No. 15, Rods, $9.00; No. 18, Loops.....$10.00
Victor Folding.....₩ gro. $9.60

Gate—
Myers' Patent Gate Hangers, ₩ doz, net 50%

Joist and Timber—
Lane Bros. Co.....35%

Hasps—
Griffin's Security Hasp.....50&10%
McKinney's Perfect Hasp, ₩ doz..60%

Hatchets—
Regular list, first qual.50&10@60%
Second quality.....60@60&10%

Heaters, Carriage—
Clark, No. 5, $1.25; No. 5B, $1.50; No. 3, $1.75; No. 3D, $2.00; No. 7D, $2.25; No. 3E, $2.50; No. 1, $3.00.....25%
Clark Coal, ₩ doz., $0.75.....20%

Hinges—
Blind and Shutter Hinges
Surface Gravity Locking Blind: Doz. Sets with Fastenings, No. 1, $0.70; No. 3, $1.25; No. 5, $2.65.
Mortise Shutter.....80%
Mortise Reversible Shutter...80%
North's Automatic Blind Fixtures, No. 2, for Wood, $9,00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges. No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, No. 1647½, ₩ doz. sets, without screws, $0.95; with screws, $1.25.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&5%
Acme, Lull & Porter.....75%
Queen City Reversible.....75%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&5%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&5%
Clark's O. P., No. 1.....75&10%
Clark's O. P., Nos. 3 and 5....75&5%
Tip Pat'n, No. 1.....75&10%
Clark's No. 3.....75&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....70&10&5%
Shepard's Double Locking.....75%
Champion Gravity Locking.....75&5%
Pioneer .....75&10%
Empire 65%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L't'chs.	*$2.00*	*2.70*	*5.00*
Hinges only.....	*1.25*	*1.90*	*3.50*
Latches only.....	*.70*	*.75*	*.35*

New England:
With Latch.....doz..@$2.00
Without Latch.....doz..@$1.60
Reversible Self-Closing:
With Latch.....doz..@$1.75
Without Latch...doz. ...@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz..$1.15
Wrightsville Hardware Co.:
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3.....70%

Miscellaneous—
Griffin Mfg. Co., Fleur de Lis Surface Hinges, ₩ doz. prs.....$1.0.

Pivot Hinges—
Bommer Bros, Pivot, Ball Bearing 40%
Lawson Mfg. Co, Matchless.....30%

Spring Hinges—
Holdback, Cast Iron...$6.75@$7.00
Non-Holdback, C'st Iron$6.50@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....40%
Bardsley's Patent Checking.33⅓%
Bommer Bros.:
Spring Butt Hinges.....40%
Surface Floor, Ball Bearing 40%
Mortise Floor, Ball Bearing.40%
Lavatory Hinges.....40%
Non-Holdback Screen Door, Nos. 2000 and 900.....40%
Holdback Screen Door, No. 999.....₩ gro, $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor.50%
Garden City Engine House...25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ₩ gr., No. 14, $9.00; No. 18.....$25.00
Columbia, Adj., No. 7, ₩ gr.$12.00
Gem, new list.....30%
Clover Leaf and Acorn, per gro. $12.00
Oxford, new list.....30%
Floor Spring Hinges.....65&10%
Columbian Steel.....65&10%
Lawson Mfg. Co.:
Matchless Spring Hinges.....30%
Matchless Jamb Hinges.....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....₩ gr. $9.00
Chief Ball Bearings Floor Hinge 50%
Ball Bearing Door.....25%
No. 777, Sheet Steel Holdb'k, ₩ gr. pr.....$9.00
Standard Mfg. Co.:
Champion Double Acting Door Hinge .....25&10&10%
Standard Double Acting Floor Hinge .....25&10&10%
Superior Spring Hinge Co.:
Superior Floor Hinges.....40%
Spring Hinges.....40%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list February 10, 1908:
Light Strap Hinges....65%
Heavy Strap Hinges....75%
Light T Hinges.....60%
Heavy T Hinges....40&10%
Extra Hvy. T Hinges.65&10%
Hinge Hasps.....40%
Cor. Heavy Strap.....75%
Cor. Ex. Heavy T...65&10%
} *Extra 1647½.*

Screw Hook and Strap.
6 to 12 in..lb. 3½¢
1¼ to 20 in..lb. 3¼¢
22 to 36 in..lb. 3 ¢

Screw Hook and Eye:
¾ to 1 inch.....lb. 8½¢
⅝-inch .....lb. 7½¢
½-inch .....lb. 8½¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—
M'f'gr's list, price per gross:

Inch	*15*	*16*	*17*	*18*
Galv. Open....	*$35*	*$39*	*$42*	*$46*
Jap. Open....	*26*	*28*	*31*	*35*
Galv. Funnel...	*43*	*48*	*52*	*56*
Jap. Funnel....	*33*	*36*	*39*	*43*

} *Extra 10&7½%*

Masons' Etc.
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $1.05
Steel Mortar, No. 158.....each $1.35

Hoes—Eye—
Scovil and Oval Pattern, 60&10@60&10&10%
Grub, list Feb. 23, 1899, 70&10@70&10&10%
D. & H. Scovil.....27½%
Am. Fork & Hoe Co. (Scovil Pattern).....60&5%

Handled—
Cronk's Weeding, No. 1, $2.00; No. 2, $2.50
Star Double Bit.....$2.50
American Fork & Hoe Co.:
Regular, Cotton.....75&10&5&2½%
Crescent, Cultivator.....75&2½%
Mattock, Senior.....70%
Mattock, Junior.....70%
Sprouting.....50%
Tobacco, Harper's.....66⅔&15&10%
Warren.....55&10&10&5%
Ivanhoe.....65&15&10%
Cultivator, B B 6.....70&10&10&5%
Cultivator, B B 6½.....70&10&10&5%
Weeding, Acme.....72½&10&2½%
Scuffle, Lightning.....60&5%

Hoisting Apparatus—
See *Machines, Hoisting.*

Holders—Bit—
Angular, ℔ doz, $24.00.....45&10%

Door—
Bardsley's, Iron, 40%; Brass and Bronze.....25%
Empire.....50%
Pullman.....25%
Richards Mfg. Co.: No. 117, Ever-ready, 40%; Nos. 118, 119, Sure Grip.....50%
Superior.....40%

File and Tool—
Nicholson File Holders and File Handles.....33⅓@40%

Fruit Jar—
Triumph Fruit Jar Holder, ℔ gross, $18.00; ℔ doz.....$2.00

Trace and Rein—
Fernald Double Trace Holder, ℔ doz. pairs.....$1.25
Dash Rein Holder, ℔ doz.....$1.25

Hones—Razor—
Pike Mfg. Co., Belgian and Swaty, 50%; German.....33⅓%

Hooks—Cast Iron—
Bird Cage, Reading.....40%
Clothes Line, Reading List.....40%
Coat and Hat, Reading.....45&20%
Coat and Hat, Wrightsville.....60&5%
Harness, Reading List.....40%

Wire—
Belt, Nos. 1 to 15....75&10@80%
Wire C. & H. Hooks..80@80&10%
Bradley Metal Clasp Wire, Coat and Hat, 75&10@80%; Ceiling..75&10@80%
Columbian Hdw. Co., Gem.....75&10%
Parker Wire Goods Co., King..75&10%
Wire Goods Co.:
Acme, 60&10%; Chief, 70&10%; Crown, 75%; Czar, 65&10%; V Brace, 75%; Czar Harness, 50%; Ceiling, 75%.

Wrought Iron—
Box, 6 in., per doz., $0.90; 8 in., $1.15.
Cotton.....doz. $1.25@$1.50
Wrought Staples, Hooks, &c.—See Wrought Goods.

Miscellaneous—
Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz., $6.20; Medium, $6.75; Heavy, $7.65
Grass, boat, all sizes, per doz., $2.75@$3.00
Grass, common grades, all sizes, per doz.....$1.25@$1.50
Whiffletree.....lb. 5¾@6¢
Hooks and Eyes:
Brass.....60@60&10%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....40%
Turner & Stanton Co. Cup and Shoulder.....65&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—
See *Nails, Horse.*

Horseshoes—
See *Shoes, Horses.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition.....ft. 6@6½¢
3-ply Guaranteed....ft. 8½@9¢
4-ply Guaranteed....ft. 9½@12¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8@ 9c
Fair Quality.....ft. 10@11¢

Irons—Sad—
From ¼ to 10.....lb. 3½@3¾¢
B. B. Sad Irons.....lb. 3¼@3½¢
Mrs. Potts', cents per set:

	Nos.	50	55	60	65
Jap'd Caps		*86*	*93*	*96*	*93*
Tin'd Caps		*91*	*88*	*1.01*	*98*

New England Pressing..lb. 3¾@4¢

Bar and Corner—
Richards Mfg. Co., Bar, 60&10%; Corner.....60%

Pinking—
Pinking Irons.....doz. 60@65¢

Irons, Soldering
See *Coppers.*

Jacks, Wagons—
Covert Mfg. Co.:
Auto Screw.....30&2%; Steel, 45%
Lockport.....50%
Lane's Steel.....30&5%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co's.....25%

Ladder—
Richards Mfg. Co., Ladder Jacks..50%

Jointers—
Pike Mfg. Co., Saw Jointers, $7.00..40%

Kettles—
Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—
Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co....60%

Corn—
Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60%
American Fork & Hoe Co.:
Easy Cut, ℔ doz No. 10 C H...$2.10
Easy Cut, ℔ doz., No. 10 B C H.$2.20
Acme, ℔ doz.....$2.35
Dent, ℔ doz.....$2.35
Adjustable, Serrated, ℔ doz.....$1.90
Serrated, ℔ doz.....$1.85
Yankee, No. 1 C H.....$1.35
Yankee, No. 2 C H.....$1.15

Drawing—
Standard List.....80&10@—%
C. E. Jennings & Co., Nos. 45, 46, 25&7½%
Jennings & Griffin, Nos. 41, 42, 66⅔&7½%
Swan's.....66⅔%@70%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—
Serrated Edge, per doz. $5.00@5.50
Iwan's Sickle Edge.....℔ doz. $9.50
Iwan's Serrated.....℔ doz. $10.00

Miscellaneous—
Farriers' .....doz. $2.60@3.55
Westenholm's .....℔ doz. $3.00@3.25

Knobs—
Base, 2½-inch, Birch or Maple, Rubber Tip.....gro. $1.25@1.40
Carriage, Jap., Drive, all sizes, gro. 35@40¢
Door, Mineral.....doz. 65@70¢
Door, Por. Jap'd.....doz. 70@75¢
Door, Por. Nickel..doz. $2.05@2.15
Bardsley's Wood Door, Shutters, &c. 15%

Lacing, Leather—
See *Belting, Leather*

Ladders, Store, &c.—
Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—
L. & G. Mfg. Co., Melting and Plumbers'.....25%
P., S. & W.....40&10%
Reading.....60%

Lamps,—
Hammer's M. I. Hand.....45%

Lanterns—Tubular—
Regular, No. 0.....doz. $3.50@4.00
Side Lift, No. 0....doz. $4.00@4.50
Hinge Globe, No. 0. doz. $4.00@4.50
Other Styles.....40@40&10%

Bull's Eye Police—
3-inch.....$3.75@4.00

Latches—Thumb—
Roggin's Latches, Jap'd, with Screws.....doz. 35@40¢

Door—
Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.00
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—
Small.....doz. 50¢; large, 60¢
Covert Mfg. Co.:
Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20%.

Leathers, Pump—
See *Pumps—*

Lifters, Transom—
R. & E.....10%

Lines—
Wire Clothes, Nos. 18 19 20
100 feet.....$2.30 1.95 1.75
75 feet.....$1.95 1.65 1.50
Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Solid Braided Masons'.....30%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%
Turner & Stanton Co.:
Solid Braided Chalk, Masons' and Awning Lines.....40%
Clothes Lines, White Cotton.....20%
Shade Cord, Cotton or Linen.....20%

Locks—Cabinet—
Cabinet Locks....33⅓@33⅓@5%

Door Locks, Latches, &c.—
NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....10%

Padlocks—
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—
Ives' Patent:
Crescent.....10%
Automatic Gravity Metal Sash, ℔ gro., $149.58.....10%
Window Ventilating.....10%
Pullman Patent Ventilating Lock..25%
Reading Sash Locks.....40%
Taylor Mfg. Co., Perfect Ventilating, ℔ doz.....$0.75@$1.00

Machines—Boring—
Com. Upr't, without Augers, $2.00@2.25
Com. Angl'r, without Augers, $2.25@2.50
Ford Auger Bit Co.....$22.00
Jennings', Nos. 1 and 4.....25&7½%
Millers' Falls.....5.75
Snell's, Upright, $2.65; Angular, $2.90
Swan's Improved.....40&10%

Corking—
Reisinger Invincible Hand Power.... ℔ doz. $48.00

Fence—
Williams' Fence Machines....each, $5.50

Hoisting—
Moore's Anti-Friction Chain Hoist.30%
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Cyclone High Speed Chain Hoist.....25%

Ice Cutting—
Chandler's.....12½%

Washing
Boss Washing Machine Co.: Per doz.
Boss No. 1.....$57.00
Boss Rotary.....$57.00
Champion Rotary Banner No. 1.$57.00
Standard Champion No. 1.....$50.00
Standard Perfection.....$27.00
Cincinnati Square Western.....$33.00
Uneeda American, Round.....$33.60

Mallets—
Hickory.....45&5@50%
Lignumvitæ.....45&5@50%
Tinners' Hickory and Applewood.....doz. 45&5@50%

Mangers, Stable—
Swett Iron Works.....50%

Mats, Door—
Acme Flexible Steel.....50%
Elastic Steel (W. G. Co.), new list.50%

Mattocks—
See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—
Enterprise Mfg. Co.:
Coffee.....20@25%
Shell and Corn.....25&10%
National list Jan. 1, 1902.....30%
Parker's Columbia and Victoria..33⅓%
Parker's Box and Side.....50&10%
Swift, Lane Bros. Co.....30%

Motors, Water—
Divine's Red Devil.....30%

	2	3	4	
$2.50	3.50	10.00	15.00	33⅓%

Lippincott's:

No.	1	2	3	4	
	$2.50	3.50	10.00	15.00	33⅓%

Pike Mfg. Co., Tool and Knife Grinding.....33⅓%

Mowers, Lawn—
NOTE.—Net prices are generally quoted
Cheapest, 10-in., $2.00; advance 10¢ for each size.
Cheap, 10-in., $2.25; advance 15@20¢ for each size.
Better Grade, 10-in., $3.00; advance 25¢ for each size.

	12	14	16	18-in.
High Grade	*$4.50*	*4.75*	*5.00*	*5.25*

Continental.....60%
Great American.....70%
Great American Ball B'r'g, new list.70%
Quaker City.....70%
Pennsylvania.....60%
Pennsylvania, Jr., Ball Bearing.....50&10&5%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%

Nails—
Wire Nails and Brads, Miscellaneous.....85&5@85&10%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	.. ℔ lb. net, 12¢
Coleman	13	12	12	11	11	net ℔ lb
New Haven	23	21	20	19	18	.. ℔ lb. net, 12¢
Livingston	19	18	17	16	16	..... 10%
Western						℔ lb 8½¢

Jobbers' Special Brands, per lb. 9¢

Picture—

	1½	2	2½	3 in.
Brass Hd. gro.	*.45*	*.55*	*.60*	*.70*
Por. Head, gro.	*1.10*	*1.10*	*1.10*	

Upholsters—
Brass.....30%
Plated.....30&10%

Nippers—
See *Pliers and Nippers.*

Nipples—
Standard Nipple Co.:
Wrought Pipe Nipples.....80%

Nuts—*Blank or Tapped.*
Cold Punched: Off list.
Square.....5.40¢
Hexagon.....6.00¢
Square, C., T. & R......5.80¢
Hexagon, C., T. & R......6.60¢
Hot Pressed: Off list.
Square.....5.90¢
Hexagon.....6.40¢

Oakum—
Best.....lb. 6½¢
U. S. Navy.....lb. 6 ¢
Navy.....lb. 5 ¢
Plumbers' Spun Oakum..2¾@3 ¢

Oil—
Pike Mfg. Co., Stonoil.....40%

Oil Tanks—See *Tanks, Oil.*

Oilers—
Steel, Copper Plated.....75&10%
Chase or Paragon:
Brass and Copper.....50&10%
Zinc.....65&10@70%
Railroad.....60&10&10%
Malleable, Hammers' Improved, Nos. 11, 12 and 13, 10%; Old Pattern, Nos. 1, 2, 3, 4, 50%.
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%
Hero Fruit Jar Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, etc.....60@60&10%
Maple City Mfg. Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers—Packing Box—
Herculever, ℔ doz., $24.....30%

Can Openers—

	Per doz.
Sprague, Iron Handle	*$0.30@35¢*
Sprague, Wood Handle	*40¢*
Sardine Scissors	*$1.75@3.00*

Can and Bottle Openers, ℔ doz., net: Yankee, $0.75@$0.85; Little Gem, $0.50@$0.65; Nifty.....$0.75

Egg—
Hartigan Nickel Plate, ℔ doz., $2.00; Silver Plate, $4.00.

Packing—
Asbestos Packing, Wick and Rope, any quantity.....16@17¢

Rubber—
(Fair quality goods.)
Sheet, C. I......11@12¢
Sheet, C. O. S......11@12¢
Sheet, C. B. S......12@13¢
Sheet, Pure Gum.....40@45¢
Sheet, Red.....40@50¢
Jenkins' '96, ℔ lb, 80¢.....25%

Miscellaneous—
American Packing....lb. 7@10 ¢
Cotton Packing.....lb. 16@25 ¢
Italian Packing.....lb. 9@10¢
Jute.....lb. 4@4¼¢
Russia Packing.....lb. 9@10¢

Pails, Water, Well, &c.—
See *Buckets.*

Paint—
Dixon's Silica-Graphite, in 1 gal. pails and 5 gal. kegs, 25%; packages of larger size.....20%

Pans—Dripping—
Standard List.....75&5@75&10%
Edwards, Royal Blue.....75%

Fry—
Common Lipped:

Nos.	1	2	3	4	5
Per doz.	*$0.75*	*0.85*	*0.95*	*1.15*	*1.30*

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz.	*$1.75*	*2.25*	*2.80*	*3.15*

Paper—Building Paper

Asbestos:	lb.
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	*2½¢*
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lb., per 100 sq. ft.	*3½¢*
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	*3½¢*

Per roll.
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll, 48@58¢
Medium weight, 30 lbs. to roll, 56@70¢
Heavy weight, 40 lbs. to roll, 75@78¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton.....$51.50
Red Rope Roofing, 250 sq. ft. per roll.....$1.75

Tarred Paper—
1 ply (roll 400 sq. ft.), ton. $31.06@$38.00
2 ply, roll 108 sq. ft......65¢
3 ply, roll 108 sq. ft......88¢
Slater's Felt (roll 500 sq. ft.).80¢

Sand Paper and Cloth—
Flint and Emery.....50&10%
Garnet Paper and Cloth.....25%

Parers—Apple—
Goodell Co.:
Family Bay State.....℔ doz. $15.00
Improved Bay State.....℔ doz. $36.00
New Lightning.....℔ doz. $7.00
Turn Table '98.....℔ doz. $6.00
White Mountain.....℔ doz. $5.00
Bonanza Improved.....each $7.50
Dandy.....each $10.00
Eureka Improved.....each $20.00
New Century.....each $20.00
Ranger.....each $30.00

Livingston Nail Co.:
Daisy ..... ℔ doz. $4.00
Little Star..... ℔ doz. $5.00
Rocking Table..... ℔ doz. $6.20
Reading Hardware Co.:
Advance ..... ℔ doz. $1.00
Baldwin ..... ℔ doz. $4.00
Reading 72..... ℔ doz. $3.25
Reading 78..... ℔ doz. $6.25

Orange—
Goodell Co., Success.....each $20.00

Potato—
Saratoga ..... ℔ doz. $7.00
White Mountain..... ℔ doz. $6.00

Picks and Mattocks—
(List Jan., 1908.)
List .....75&10%
Cronk's Handled Garden Mattock, ℔ doz., $3.00.....33⅓%

Pinking Irons—
See *Irons, Pinking.*

Pins, Escutcheon—
Brass .....50@50&10%
Iron, list Nov. 11, '85..60@60&10%

Pipe, Cast Iron Soil—
Eastern Prices:
Standard, 2-6 in......68% } Extra, 10 & 10&5%
Extra Heavy, 2-6 in.....71½ }
Fittings, Standard and Heavy 80¾%

Pipe, Merchant—
Carloads to Consumers:

	Steel. Blk. %	Steel. Galv. %	Iron. Blk. %	Iron. Galv. %
⅛ and ¼ in..				
⅜ in.....				
½ in.....	See Trade Report			
¾ to 6 in....				
7 to 12 in....				

Pipe, Vitrified Sewer—
Carload lots.
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:
First-class 87%
Second-class 90%

Pipe, Stove—

Edwards' Nested:	Per 100 joints. C. L.	L. C. L.
5 in., Standard Blue....	$6.25	$7.25
6 in., Standard Blue....	6.75	7.75
7 in., Standard Blue....	7.75	8.75
5 in., Royal Blue.....	7.00	8.00
6 in., Royal Blue.....	7.50	8.50
7 in., Royal Blue.....	8.50	9.50
Wheeling Corrugating Co.'s Nested:		
5 in., Uniform Color..	$5.90	$6.90
6 in., Uniform Color..	6.40	7.40
7 in., Uniform Color..	7.40	8.40

Planes and Plane Irons—
Wood Planes—
Bench, first qual.....30@30&5%
Bench, second qual....40@40&5%
Molding .....25@25&5%
Chapin-Stephens Co.:
Bench, First Quality.....30%
Bench, Second Quality.....40%
Molding and Miscellaneous.....25%
Toy and German.....30%
Union 60%

Iron Planes—
Chaplin's Iron Planes.....60%
Union 60%

Plane Irons—
Wood Bench Plane Irons, list Dec. 12, '06.....25%
Buck Bros.....30%
Chapin-Stephens Co.....25%
Union 50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—
Kohler's Eclipse..... ℔ doz. $7.50

Plates—
Felloe ..... *lb.* 3¾@4¢
Avery Stamping Co.:
Standard Wrot, Steel Felloe Plates in 100 lb kegs, per 100 lb, ¾-in. to 1¼-in., $4.00 net; 1¼-in. to 2-in., inclusive, $3.75 net.

Steel Pipe Hook—
Never-Break .....75&10%

Pliers and Nippers—
Button Pliers....75&5@75&10&5%
Gas Burners, per doz., 5 in., $1.25 @$1.30; 6 in., $1.45, $1.50.
Gas pipe..

7	8	10	12-in.
$2.00	$2.25	$2.75	$3.50

Acme Nippers.....50&5%
Cronk & Carrier Mfg. Co.:
American Button.....80%
Improved Button.....75&10%
Cronk's 60%
No. 80 Linemen's.....50%
Stub's Pattern.....45%
Combination and others.....33⅓%
Elmore Tool Mfg. Co.:
Gas Pliers.....70%
Wire and Cutting Pliers.....75%
Heller's Farriers' Nippers, Pincers and Tools.....40&5@40&10&5%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds....40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels.....30@30&10%
Chapin's Imp. Brass Cor..40@40&10%
Pocket Levels.....30@30&10%
Extension Sights.....30@30&10%
Machinists' Levels.....40@40&10%
Disston's Plumbs and Levels....60&10%
Disston's Pocket Levels.....60&10%
Stanley's Dulex.....35%
Woods' Extension.....33⅓%

Points, Glaziers'—
Bulk and 1-lb. papers....*lb.* 9 ¢
¼-lb. papers.....*lb.* 9½¢
¼-lb. papers.....*lb.* 10 ¢

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Police Goods—
Manufacturers' Lists...25@25&5%
Tower's 25%

Polish—Metal, Etc—
Ladd Co.:
Putzade Liquid, ℔ gro., ½ pts., $12.00; 1 pts., $20.00; 1 qts., $40.00; ℔ doz., ½ gals., $6.35; 1 gals., $12.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $5.00..40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro, $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75.

Stove—
Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon, ℔ gr. $5.75.....10%
Dixon's Plumbago..... ℔ lb 8¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $4.50.....10%
Japanese ..... ℔ gr. $3.50
Jet Black..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50

Window Polish—
Benj. P. Forbes:
Glasbright, No. 2, gal pails, ℔ doz., $24.00; each, $2.50; 1 lb cans, each .....75¢
Glasbright Powder, bbls., ℔ lb..20¢

Poppers, Corn—
1 qt. Square..doz.$0.80; gro.$8.75
1 qt. Round..doz.$0.90; gro.$10.00
1½ qt. Square.doz.$1.20; gro.$12.00
2 qt. Square..doz.$1.50; gro.$15.00

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Posts, Steel—
Steel Fence Posts, each, 6 ft., 46¢; 6½ ft., 48¢; 7 ft., 50¢.
Steel Hitching Posts.....each $1.30

Potato Parers—
See *Parers, Potato.*

Pots, Glue—
Enameled 40%
Tinned .....30&10%

Powder—
Black Sporting:
Kegs (25 lb.)..$5.00@5.50
Half Kegs (12½ lb.), $2.75@3.00
Quarter Kegs (6¼ lb.), $1.50@1.65
Canisters, pounds... .25
Canisters, ½ pounds. .15
Canisters, ¼ pounds. .12
} Discount to the trade, 10%.
NOTE.—Prices vary according to territory.
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk).....	$12.00	$15.00
Half Keg (12½ lb bulk)..	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)..	14.00	17.00
Half case 12 (1 lb c. bk)..	7.25	8.75

Presses—
Fruit, Wine and Jelly—
Enterprise Mfg. Co.....20@25%

Seal Presses—
Morrill's No. 1, ℔ doz., $20.00.....50%

Pruning Hooks and Shears—
See *Shears.*

Pullers, Nail, Etc.—
Cyclops 50%
Elmore Tool Mfg. Co.:
Drop Forged Tack Pullers.....10%
Nail Pullers.....40%
Miller's Falls, No. 3, ℔ doz., $12.00.. 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 .....50%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
The Scranton Co. Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00
Smith & Hemenway Co.:
Diamond B.....70%
Giant 50%
Staple Pullers, Utica and Davison 60%
Taylor Mfg. Co., Sampson Tack, ℔ doz.....$0.40

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz.	$0.30	.45	.60	1.05
Hay Fork, Swivel or Solid Eye, doz., 4 in., $1.25; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz.	$0.65	.85	1.20	
Inch	1¼	1½	1¾	2
Screw, doz.	$0.16	.19	.23	.30
Inch	1¾	2	2¼	2½
Side, doz.	$0.25	.40	.55	.60
Inch	1½	1¾	2	2½

Sash Pulleys—
Common Frame: Square or Round End, per doz., 1¾ and 2 in. .....17@20¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in....30@31¢
Acme, No. 35..1¾ in., 19¢; 2 in., 20½¢
American Pulley Co.:
Wrought Steel American Plain Axle .....50&10%
Wrought Steel, Eagle, ℔ doz., 1¾ in., 17¢; 2 in., 20¢; 2¼ in. .....27¢
Top Notch, Electrically Welded, Nos. 3 and 4, ℔ doz.....19¢
Common Sense..... ℔ doz. 20¢
Merit ℔ doz., 2¼ in.....37¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ℔ doz. 50%
Grand Rapids All Steel Noiseless..50%
Niagara, No. 25, 1¾ in., 19¢; 2 in. .....20½¢
No. 26 Troy..1¾ in., 14½¢; 2 in., 16½¢
Star, No. 26....1¾ in., 19¢; 2 in.....20½¢
Tackle Blocks—See Blocks.

Pumps—
Cistern 60%
Pitcher Spout.....75&10&5@80
Wood Pumps, Tubing, &c....50%
Barnes Dbl. Acting (low list).....50%
Barnes Pitcher Spout.....80%
Contractors' Rubber Diaphragm, No. 2, B. & L. Block Co.....$16.00
Daisy Spray Pump..... ℔ doz. $6.50
Flint & Walling's Fast Mail Hand (low list).....50&5%
Flint & Walling's Fast Mail (low list) .....50&5%
Flint & Walling's Tight Top Pitcher 80%
National Specialty Mfg. Co., Measuring, Nos. 2, $6.00; 3, $5.50.....30%
Myers' Pumps (low list).....
Myers' Power Pumps..... } 60%
Myers' Spray Pumps.....

Pump Leathers—
Plunger and Valve Leathers—Per gro.:

No.....	1	2	3	4
	$5.00	6.00	7.00	8.00

Cup Leathers—Per 100:

Inch....	2½	3	3½	4
	$5.00	7.00	9.00	12.00

} $0@30&5%

Punches—
Saddlers' or Drive, good, doz.50@75¢
Spring, single tube, good quality $1.75
Revolving (4 tubes)....doz.$3.50
Bemis & Call Co.'s Cast St'l Drive.50%
Elmore Tool Mfg. Co.:
Machinists' Center.....40%
Tinners': Solid, 50%; Prick.....50%
Morrill's Nos. 1AA, 1A, 1B, 1C, 1D, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Tinners' Hollow, P., S. & W. Co..40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44.....40&10%

Rail—Barn Door, &c.—
Sliding Door, Painted Iron, 2½@2¾¢
Sliding Door, Wrought Brass, 1⅛ in., lb., 36¢.....30%
Cronk's:
Double Braced Steel Rail..℔ ft. 2¾¢
O. N. T. Rail.....2¾¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.25; 1¼ x 3-16 in., $3.75.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.50; 1¼ x 3-16 in., $4.00.
Lane's:
Hinged Track, ℔ 100 ft.....$3.45
O. N. T., ℔ 100 ft., 1 in., $3.12½; 1¼ in., $3.45; 1½ in., $4.00.
Standard, 1¼ in.....℔ 100 ft. $4.00
Lawrence Bros.:
1 x 3-16 in., ℔ 100 ft., $7.50; 1¼ x 3-16 in., $8.75.....55&7½%
Trolley, No. 301, ℔ ft.....9¢
McKinney's:
Hinged Hanger Track, ℔ ft., 11¢ .....60&5%
1 x 3-16 Track.....55&7½%
Myers' Stayon Track.....60&5%
Richards Mfg. Co.:
Common, 1 x 3-16 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail..60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 50.....60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.

Rakes—
NOTE.—Many goods are sold at net prices.
American Fork & Hoe Co.:
Lawn, ℔ doz., No. 24, $2.50; No. 20 .....$2.25
Cronk's:
Steel Garden: Champion, ℔ doz., 12-tooth, $3.75; 14-tooth, $4.00; 16-tooth, $4.25; Ideal, ℔ doz., 12-tooth, $3.00; 14-tooth, $3.30; 16-tooth, $3.60.
Victor, 12-tooth, $2.25; 14-tooth, $2.50; 16-tooth, $2.75.
Queen City Lawn, ℔ doz., 20 teeth, $2.85; 24, $3.00.....net
Anticlog Lawn, ℔ doz.....$4.00
Malleable Garden.....70&10%
Ideal Steel Garden, ℔ doz., 12 teeth, $15.00; 14, $16.00; 16, $18.00.....80%
Kohler's:
Jumbo Lawn, 36-tooth....℔ doz. $5.00
Lawn Queen, 20-tooth....℔ doz. $2.85
Lawn Queen, 24-tooth....℔ doz. $3.00
Paragon, 20-tooth.....℔ doz. $2.65
Paragon, 24-tooth.....℔ doz. $2.75
Steel Garden, 14-tooth....℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00

Rasps, Horse—
Disston's 75%
Heller Bros.'.....70&5@70&10&5%
Liveright Bros.' Gold Medal.70&10@75%
McCaffrey's American Standard..... 60&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—
John Engstrom Swedish.....65%
Sharp Shaver.....60%
Fox Razors, ℔ doz., No. 42, $24.00; No. 44, $20.00; No. 82, Platina, $36.00. } Discontinued

Reels, Fishing—
Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo.....20%
Aluminum, German Silv., Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 24 N, 26 PN.....20%
2904 P, 33⅓%; 2904 PN., 33⅓%; 0924 N., 33⅓%; 92081 N., 33⅓%; 002904 PN., 33⅓%; 802 N., 33⅓%; 986 PN, 2904 N, 974 PN.....25%
5009 PN, 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*
Japanned, Electroplated and Bronzed 70%
White Porcelain Enamel..50&10%
Solid Brass or Bronze Metal.40%

Revolvers—
Single Action.....95¢@$1.00
Double Action, except 44 cal..$2.00
Double Action, 44 caliber...$2.00
Automatic $4.00
Hammerless $4.50

Riddles, Hardware Grade
16 in......*per doz.*$2.50@$2.75
17 in......*per doz.*$2.75@$3.00
18 in......*per doz.*$3.00@$3.25

Rings and Ringers—
Bull Rings—

	2	2½	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.10	1.25	1.65 doz.

Hog Rings and Ringers—
Hill's Rings, per gro. boxes, $4.60@$4.75; per doz. boxes, 40@45¢
Hill's Ringers, Gray Iron, doz., 55@65¢
Hill's Ringers, Malleable Iron, doz.85@95¢
Blair's Rings..per gro.$5.50@$6.00
Blair's Ringers..per doz.65@70¢

Rivets—
Copper Rivets and Burrs....50%
Tinners' and Miscellaneous Rivets .....80@80&10%

Bifurcated and Tubular—
Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 50 count, 40@45¢; Tin, 100 count, 56@63¢.
Tubular, per doz. boxes, 50 count, 60@68¢; 100 count, $1.12@$1.26.

Rollers—
Cronk's Stay, No. 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56, $0.75; No. 60.....$0.75
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57.....50%
Underwriters', Nos. 59, 60.....50%
Favorite, No. 54.....60%

Rope—
Manila, 7-16 in. diam. and larger: Pure .....*lb.*8¼@8½¢
Sisal, 7-16 in. diam. and larger: Pure .....*lb.*6¾@7¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse: Pure .....*lb.*7¼@7½¢
Sisal, Tarred, Medium Lath Yarn: Pure .....*lb.*6¼@6½¢
Cotton Rope: Best, ¼-in. and larger..16½@18¢
Medium, ¼-in. and larger.15@16¢
Common, ¼-in. and larger..7½¢
In coils, ½¢ advance.
Jute Rope: Thread, No. 1, ¼-in. and up, lb. .....5½¢
Thread, No. 2, ¼-in. and up, lb. .....5¢

Wire Rope—
Galvanized .....47½&62½%
Plain .....55&62½%

Ropes, Hammock—
Covert Mfg. Co.:
Jute, 35%; Sisal.....20%

Rules
Boxwood .....60&5%
Ivory .....25&5%
Chapin-Stephens Co.:
Boxwood 60%
Flexifold 40%
Ivory .....25@25&10%
Miscellaneous .....50@50&10%
Stephens' Combination.....55%
Stationers' .....50@50&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....50&10%
Upson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 45%
Band ..... 50@50&10%
Butcher Saws 50%
Cross Cuts 35%
One-Man Cross Cut 40%
Narrow Cross Cut 50%
Hand, Rip and Panel ..... 35&5%
Miter Box and Compass 40%
Mulay, Mill and Drag 45%
Wood Saws ..... 40&10%
Chapin-Stephens Co.:
Turning Saws and Frames 30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws ..... 30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth 50%
Band, 2 to 18 in. wide 60%
Band, ¼ to 1¾ 60%
Crosscuts 45%
Narrow Crosscuts 50%
Mulay, Mill and Drag 50%
Framed Woodsaws 25%
Woodsaw Blades 25%
Woodsaw Rods, Tinned 15%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8 ..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination 30%
Compass, Key Hole, &c. 25%
Butcher Saws and Blades 30%
C. E. Jennings & Co.'s:
Back Saws 16¾%
Butcher Saws ..... 25&7½%
Compass and Key Hole Saws, 33⅓&7½%
Framed Wood Saws ..... 25&7½%
Hand Saws 12½%
Wood Saw Blades ..... 33⅓&7½%
Millers Falls:
Butcher Saws ..... 15&10%
Star Saw Blades ..... 15&10%
Massachusetts Saw Works:
Victor Kitchen Saws ..... 40&10&50%
Butcher Saws Blades ..... 35@40%
Peace & Richardson's Hand Saws 30%
Simonds':
Circular Saws 45%
Crescent Ground Cross Cut Saws 30%
One-Man Cross Cuts ..... 40&10%
Gang Mill, Mulay and Drag Saws 45%
Band Saws 50%
Back Saws ..... 25@25&7½%
Butcher Saws ..... 35@35&7½%
Hand Saws ..... 25@25&7½%
Hand Saws, Bay State Brand 45%
Compass, Key Hole, &c. 25@25&7½%
Wood Saws ..... 40&7½%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50%

Hack Saw Blades and Frames—
Atkins' Hack Saw Blades A A A ..25%
Disston's:
Concave Blades 25%
Keystone Blades 35%
Hack Saw Frames 30%
Simonds, 25%; The Best, 35%:
Culley 35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180 .... 40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades ..... 40&10%
Griffin's Hack Saw Frames ..... 35&5&10%
Griffin's Hack Saw Blades ..... 35&5&10%
Star Hack Saws and Blades ..... 15&10%
Sterling Hack Saw Blades ..... 30&10&5%
Sterling Hack Saw Frames ..... 30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00 ..10%
Victor Hack Saw Blades 20%
Victor Hack Saw Frames 40%
Whitaker Mfg. Co.:
National Hand Blades, Hand Frames, Power Blades 40%

Scroll—
Barnes, No. 7, $15 ..... 25%
Barnes' Scroll Saw Blades 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20 ..... 20%
Lester, complete, $10.00 ..... 15&10%
Rogers, complete, $3.50 and $4.00 ..... 15&10%

Scales—
Union Platform, Plain ..... $2.10@2.20
Union Platform, Stpd. ..... $2.20@2.30
Chatillon's:
Eureka 25%
Favorite 40%
Grocers' Trip Scales 50%
The Standard Portables 40%
The Standard R. R. and Wag-

Scrapers—
Box, 1 Handle ..... doz. $1.85@2.10
Box, 2 Handle ..... doz. $2.35@2.50
Ship...Light, $2.00; Heavy, $4.50
Chapin-Stephens Co., Box ..30@30&10%
Richards Mfg. Co., Foot 60%

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@ 2.75; 1½, $3.00@3.25; 1¼, $3.50@3.75
Bench, Wood ..... 20@20&10%
Hand, Wood ..... 70&10@70&10&10%
Chapin-Stephens Co., Hand ..... 70@70&10&2½%

Coach, Lag and Hand Rail—
Lag, Cone Point ..... 80&10%
Coach, Gimlet Point ..... 80&5%
Hand Rail ..... 70&10@75%

Jack Screws—
Standard List ..... 70&10@75%
Millers Falls ..... 50&10&10%
Swett Iron Works ..... 70@75%

Machine—
Cut Tread, Iron, Brass or Bronze:
Flat Head or Round Head, 50&50&10%
Fillister Head ..... 40@40&10%
Rolled Thread, F. H. or R. H., Iron ..... 75&10%
F. H. or R. H., Brass, Nos. 8 to 14 ..... 65&10%

Set and Cap—
Set (Iron) ..... 75&10&7½%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap ..... 70&10&7½%
Hex. Hd. Cap ..... 70&10&7½%
Rd. Hd. Cap ..... 50&7½%
Fillister Hd. Cap ..... 60&7½%

Wood—
List July 23, 1903.
Flat Head, Iron ..... 87½&5@..%
Round Head, Iron ..... 85&5@..%
Flat Head, Brass ..... 80&5@..%
Round Head, Brass ..... 77½&5@..%
Flat Head, Bronze ..... 75&5@..%
Round Head, Bronze ..... 72½&5@..%
Drive Screws ..... 87½&5@..%

Scroll Saws—
See *Saws, Scroll.*

Scythes— *Per doz.*
Plain Grass, Cutting Edge Polished ..... $6.25@$6.50
Clipper, Bronzed Web ..... $6.50@$6.75
Solid Steel, Web and Backs Polished ..... $7.00@$7.25
Bush, Weed and Bramble, Painted ..... $6.50@$6.75
Grain, Painted, Cutting Edge Polished ..... $8.25@$8.50
Clipper Grain, Bronze Web. $8.50@$8.75

Seeders, Raisin—
Enterprise ..... 25@30%

Sets— Awl and Tool—
Fray's Tool Handles, Nos. 1, $12; 2, $16; 3, $12 ..... 50%
Millers Falls Adj. Tool Handles. No. 1, $12; No. 4, $12; No. 5, $18..20&10%

Garden Tool Sets—
American Fork & Hoe Co.:
Rake, Shovel and Hoe, ₱ doz. sets, No. 3 P F $7.25

Sets, Nail—
Octagon ..... gro. $3.50@3.75
Buck Bros. 37½%
Elmore Tool Mfg. Co. 30%
Mayhew's ..... ₱ gro. $9.00
Snell's Corrugated, Cup Pt. ..... 40&10%
Snell's Knurled, Cup Pt. ..... 40&10%
Victor Knurled, Cup Pt. ..... ₱ gro. $7.50

Rivet—
Regular list ..... 75@75&10%

Saw—
Atkin's:
Criterion 40%
Adjustable 40%
Disston's Star, Monarch and Triumph 30%
Morrill's No. 1 ..... $15.00
Nos. 3 and 4, Cross Cut $20.60
No. 5, Mill $30.00
Nos. 10, 11, 95 ..... $15.60
No. 1 Old Style $10.00
Special $16.25
Giant Royal Cross Cut ..... ₱ doz. $7.50
Royal, Hand ..... ₱ doz. $4.50
Taintor Positive ..... ₱ doz. $6.75
50%

Shaving—
Fox Shaving Sets, No. 30 ..... ₱ doz., net, $24.00
Smith & Hemenway Co.'s 75%

Sharpeners, Knife—
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ₱ doz. $1.50
Mounted Kitchen Sand Stone, ₱ doz. $1.50
Natural Grit Carving Knife Hones, ₱ doz. $3.00
Quick Cut Emery Carving Knife Hones, ₱ doz. $1.50
Quick Edge Pocket Knife Hones, ₱ doz. $2.50
50%

Skate—
Smith & Hemenway Co., Eureka..50%

Shaves, Spoke—
Iron ..... doz. $1.25
Wood ..... doz. $2.00
Bailey's (Stanley R. & L. Co.) 45%
Chapin-Stephens Co. ..... 30@30&10%
Goodell's, ₱ doz. $9.00 ..... 15&10%

Shears—
	Cast Iron..	7	8	9 in.
Best	...$16.00	18.00	20.00	gro.
Good	...$13.00	15.00	17.00	gro.
Cheap	.. $5.00	6.00	7.00	gro.

Straight Trimmers, &c.:
Best quality Jap ..... 70&10&5%
Best Quality Nickel ..... 60&10&5%
Tailors' Shears ..... 40@40&10%
Acme Cast Shears ..... 40@40&5%
Columbian Cutlery Co.:
Sheep, 1900 list ..... 30&10&5%
Grass ..... 50&10%
Horse or Mule ..... 50&10%
W. H. Compton Shear Co.:
Japan Handles, Nickel Blades, 60&10&5%
Full Nickel ..... 50&10&5%
Heinisch's Tailor's Shears 10%
National Cutlery Co.'s Nickel Pla'ed, 60&10%; Japan Handles ..... 70&10%
J. Wiss & Sons Co.:
Best Quality Jap'd ..... 60&10%
Best Quality Nickeled ..... 50&10%
Tailors' 25%

Tinners' Snips—
Steel Blades ..... 20&5@20&10%
Steel Laid Blades ..... 50&10%
Acme Cast Snips ..... 40@45&5%
W. H. Compton Shear Co., Forged Steel Handles 35%
Forged Handles, Steel Blades, Berlin 50%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s 6½ to 10 in. ..... 33⅓&7½%
National Cutlery Co.'s Forged Steel 50%
Niagara Snips 40%
P. S. & W. Forged Handles, 25%; W. R. W. 50%
J. Wiss & Sons Co.:
Wiss Forged Steel 25%

Pruning Shears—
W. H. Compton Shear Co., Dropped Forged Steel 35%
Cronk's Hand Shears 33⅓%
Cronk's Wood Handle Shears 33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00 ..... 25%
Disston's Pruning Hook only, ₱ doz., $12.00 ..... 25%
J. T. Henry Mfg. Co.:
Pruning Shears, all grades 40%
P. S. & W. Co. ..... 40&10%
Columbian Cutlery Co.:
Hedge, Wilcut Brand ..... 60&10%
Lawn and Border, Wilcut Brand, 60&10%

Sheaves—Sliding Door—
Reading 40%
R. & E. list 15%

Sliding Shutter—
Reading list 40%
R. & E. list 15%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, 10 and 12 gauge ..... 60&5%
Club, Rival, 65&5%; First Quality, 60&5%
Paper Shells, Empty:
New Rapid, 10, 12, 16 and 20 gauge, 25&10%
Climax, 10 and 12 gauge; Acme and Magic, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade ..... 25&5%
Union, League, 10 and 12 gauge, Rival Grade 25%
New Climax, Defiance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge 20%
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade..20%

Shells, Loaded—
Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade ..... 40&5%
Loaded with Smokeless Powder, high grade ..... 40&10&10%
Union Metallic Cartridge Co.:
New Club, Black Powders 40%
Nitro Club, Smokeless Powders 40&5%
Arrow, Smokeless Powders 40&10&10%
Winchester:
Smokeless Repeater Grade ..... 40&5%
Smokeless Leader Grade ..... 40&10&10%
Black Powder 40%

Shingles, Metal— Per Sq.
Edwards Mfg. Co.:

	Painted.	Galv.
14 x 20	$4.25	$6.00
10 x 14	4.50	6.25
7 x 10	4.75	6.50

Wheeling Corrugating Co.:

Dixie, 14 x 20 in.	$4.05	$5.05
Dixie, 10 x 14 in.	4.25	5.45
Dixie, 7 x 10 in.	5.25	6.70

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron ..... per keg. $4.10
Steel ..... per keg. $3.85
Burden's, all sizes ..... ₱ keg $3.90

Shot—
25-lb. bag.
Drop, up to B $1.70
Drop, B and larger 1.95
Buck 1.95
Chilled 1.95
Dust 2.30

Shovels and Spades—
Association List..40@7½@40&10%
Avery Stamping Co. 40%

Snow Shovels—
Long Handle ..... $2.50@$2.75
Wood and Mall, D Handle, $2.65@$2.90

Sieves and Sifters—
Hunter's Imitation, gro. $9.50
Hunter's Genuine, per gro. $12.00

Sifters, Ash—
Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each, $3.25; ₱ doz. $39.00

Sieves, Seamless Metallic
—Per dozen.—

Mesh	1½	16	18	20
Iron Wire	...$1.05	1.05	1.10	1.20
Tinned Wire	..$1.15	1.15	1.20	1.30

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested ..... doz. $0.90@0.95
Mesh 20, Nested ..... doz. $1.00@1.05
Mesh 24, Nested ..... doz. $1.30@1.40

Sinks, Cast Iron—
Painted, Standard List:
12 x 12 to 22 x 36 in. 60%
20 x 24 to 24 x 50 in. 50%
24 x 60 to 24 x 120 in. 30%
Barnes' low list 60%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron ..... 70@70&10%
Steel ..... 35@40%

Slates, School—
Factory Shipments.
"D" Slates ..... 50@50&10%
Eureka, Unexcelled Notaless.. 60&7 tens.
Victor A, Noiseless .60&4 tens 45%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German ..... 40@40&10%
Covert Mfg. Co.:
Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%.
High Grade, 40%; Trojan 40%
Jockey 25%

Snaths—
Grass Scythe ..... 50@50&5%

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality ..... 50&10@60&5%
Cheap ..... 60@60&10%
International Silver Co:
1847 Rogers Bros. ..... 40&10%
Rogers & Bro., William Rogers' Eagle Brand ..... 50&10%
Anchor, Rogers Brand 60%
Wm. Rogers & Son ..... 60&10%
Miscellaneous
German Silver ..... 60@60&5%
Tinned Iron—
Teas ..... per gro. 50@55¢
Tables ..... per gro. $0.90@$1.00
Atlas Mfg. Co.:
Tea Spoons, ₱ gro. ..... 50¢@55¢
Table Spoons, ₱ gro. ..... $0.90@$1.00

Springs— Door—
Bardsley's Spring and Check 40%
Chicago (Coil) ..... 40&10%
Gem (Coil) 20%
Pullman Door and Gate 10%
Reliance (Coil) ..... 40&10%
Star (Coil) 35%
Torrey's Rod, 39 in. ..... ₱ doz. $1.00

Carriage, Wagon, &c.—
1¼ in. and Wider: Per 100 lb.
Black ..... $4.75@$5.00
Half Bright ..... $4.75@$5.00
Bright ..... $5.25@$5.50
Painted Seat Springs:
1½ x 2 x 26....per pair. 45@47¢
1½ x 3 x 28....per pair. 68@71¢

Sprinklers, Lawn—
American Foundry & Mfg. Co.:
Cactus, 65%; Japanese, 70%; National, ₱ doz. $12.00
Enterprise ..... 25@30%
Hero Fruit Jar Co., ₱ doz. $4.50
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $20 ..... 30%

Squares—
Nickel plated.. } *List Jan. 5, 1900.*
Steel and Iron. } 80@—%
Rosewood Hdl. Try Square and T-Bevels ..... 60&10&10@70%
Iron Hdl. Try Squares and T-Bevels ..... 40&10@40&10&10%
Disston's Try Squares and Bevels, Rosewood Handle, 60 & 10%; Iron Stock and Bevel 15%

Squeezers, Lemon
Wood, Porcelain Lined:
Cheap ..... doz. $1.00
Good Grade ..... doz. $1.25
Tinned Iron ..... doz. $0.75@1.00
Iron, Porcelain Lined ..doz. $1.75
Victor, ₱ gro. $9.00

Staples—
Barbed Blind ..... 85&5@85&10%
Electricians' ..... 80&10&10@85%
Fence Staples, Polished, $2.05; Galvanized $2.35
Poultry Netting Staples ..... per lb. 3¼@3½¢

Steels, Butchers'—
Dick's 30%
Foster Bros.' 30%

Steelyards— ....80@30&10%

Stocks and Dies—
Blacksmiths' ..... 50@50&10%
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates 25%
Green River 25%
Lightning Screw Plate 25%
Little Giant 25%
Reece's New Screw Plate 25%

Stoners, Cherry—
Enterprise ..... 25@30%

Stones, Axe—
Pike Mfg. Co., Axe Stones (all kinds) 33⅓%

Glass Cutters' Stones—
Pike Mfg. Co., Glass Cutters' Stones and Supplies 40%

Stones, Oil, &c.—
Pike Mfg. Co., 1907 list: ₱ lb.
Arkansas St. No. 1, 3 to 5½ in. $2.80
Arkansas St. No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1 ..... $4.00
Lily White Washita, 4 to 8 in. 60¢
Rosy Red Washita, 4 to 8 in. 60¢
Washita St., Extra, 4 to 8 in. 50¢
Washita St., No. 1, 4 to 8 in. 40¢
Washita St., No. 2, 4 to 8 in. 25¢
Lily White Slips ..... 90¢
Rosy Red Slips ..... 90¢
Washita Slips, Extra ..... 80¢
Washita Slips, No. 1 ..... 70¢
Washita Slips, No. 2 ..... 40¢
India Oil Stones (entire list) 33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit 40%
Quickcut Emery and Corundum Axe Stone, Double Grit 33⅓%
Quickcut Emery Rubbing Bricks..40%
Hindostan No. 1, R'g'lar. ₱ lb. 8¢
Hindostan No. 1, Small.. ₱ lb. 10¢
Turkey Oil Stones, Extra, 5 to 8 in. ..... ₱ lb. 80¢
Queer Creek Stones, 4 to 8 in. 20¢
Queer Creek Slips ..... 40¢
Sand Stone ..... 6¢
40%
33⅓%

Scythe Stones—

Pike Mfg. Co., 1907 list:
Black Diamond S. S. ℔ gro. $12.00
Lamoille S. S. ℔ gro. $11.00
White Mountain S. S. ℔ gro. $9.50
Green Mountain S. S. ℔ gro. $7.00
Extra Indian Pond S. S. ℔ gro. $8.00
No. 1 Indian Pond S. S. ℔ gro. $7.50
No. 2 Indian Pond S. S. ℔ gro. $5.00
Leader Red End S. S. ℔ gro. $5.00
Quick Cut Emery.... ℔ gro. $10.00
Pure Corundum..... ℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat. $8.80
Emery Scythe Rifles, 3 Coat. $11.00
Emery Scythe Rifles, 4 Coat. $13.20
} 33⅓%
Balance of 1907 list 33⅓%.
Lectro (Artificial), ℔ gro., $12.00 ..... 33⅓%
$12.00 .....
Lightning (Artificial), ℔ gro.,
$18.00 ..... 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers..... ℔ gro. $9.00

Stops— Bench—

Millers Falls..... 15&10%
Morrill's, ℔ doz., No. 1, $10.00.... 50%
Morrill's, No. 2, $12.50..... 50%

Door—

Chapin-Stephens Co..... 50@50&10%

Plane—

Chapin-Stevens Co..... 20%

Straps— Box—

Acme Embossed, case lots..20&10&10%
Cary's Universal, case lots...20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points..doz. 55¢
All Steel Socket...doz. $2.00@2.25
Excelsior Stretcher and Tack Hammer Combined, ℔ doz., $6.00.... 20%

Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses..... 25@25&7½%
National Specialty Co., list Jan. 1, 1903 ..... 30&5%
P., S. & W. Co..... 40&10&5%

Sweepers, Carpet—

Goshen Sweeper Co.:	Per doz.
Gilt Edge	$27.00
Superfine	26.00
Majestic	24.00
Select, Nickeled	22.00
National Sweeper Co.:	
National Queen, Nickeled	$27.00
Martha Washington, Nickeled	25.00
Monarch, Japanned	20.00
Perpetual, Japanned	18.00
Streator Metal Stamping Co.:	
Model E, Sanitaire	$25.00
Eureka	15.00
Streator Majestic, Nickeled	24.00
Streator Conqueror, Japanned	22.00

NOTE.—Leading Manufacturers give the following rebates from list prices: 50c per dozen on three-dozen lots: $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks.90&25@—%
American Cut Tacks..90&25@—%
Swedes' Cut Tacks.L..90&30@—%
Swedes' Upholsterers'..90&35@—%
Gimp Tacks.....90&35@—%
Lace Tacks.....90&35@—%
Trimmers' Tacks.....90&30@—%
Looking Glass Tacks.....65@—%
Bill Posters' and Railroad Tacks, 90&40@—%
Hungarian Nails.....80@—%
Finishing Nails.....70@—%
Trunk and Clout Nails.75&5@—%

NOTE.—The above prices are for Straight Weights.

Miscellaneous—

Double Pointed Tacks, 90&6 tens@—%

See also Nails, Wire.

Tanks, Oil and Gasoline—

Wilson & Friend Co.:

Gal.	Gasoline	Oil
30	$2.75	$3.00
60	$3.50	$4.00
110	$5.00	$5.75

Tapes, Measuring—

American Asses' Skin....50@—%
Patent Leather.....25@30&5%
Steel .....33⅓&5%
Chesterman's .....25@25&5%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list, 30@35&5%; Pocket, 35@35&5%.
Lufkins:
Asses' Skin..... 40&10@50%
Metallic ..... 30@30&5%
Patent Bend, Leather..25&5@25&10%
Pocket ..... 40@40&5%
Steel ..... 33⅓@35%
Wiebusch & Hilger:
Chesterman's Metallic, No. 34L, etc. 28%
Chesterman's Steel, No. 1038L, etc. 36%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger per 100 lb.....$2.55@$2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c.....30@35%

Ties, Bale—Steel Wire—

Single Loop.....82½&10%
Monitor, Cross Head, &c.70&2½%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White..... 20@20&5%

Haying—

Myers' Hay Tools..... 50%

Ice Tools—

Gifford-Wood Co..... 15%

Miniature—

Smith & Hemenway Co.'s, Davidson, ℔ doz., Nickel Plated, $1.50; Gold Plated..... $2.00

Saw—

Atkins' Cross Cut Saw Tools....35&5%
Simond's Improved..... 33⅓%
Simonds' Crescent..... 30%

Ship—

L. & I. J. White..... 25%

Torches—

Hammers, Engine, ℔ doz..... $4.50

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz., $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz., $1.25@1.40; gro.$13.00@13.50

Game—

Imitation Oneida.....75@10%
Newhouse ..... 50&5%
Hawley & Norton..... 65&10%
Victor ..... 75@75&10%
Oneida Community Jump..... 70&5%
Stop Thief..... 60%
Tree Trap..... 60%
Hector ..... 75@75&10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢
Mouse, Round or Square Wire, doz.85@90¢
Marty French Rat and Mouse Traps (Genuine), ℔ doz.:

	Crate lots.	Small lots.
No. 1, Rat.....	$11.50	$14.50
No. 3, Rat.....	$5.75	$6.50
No. 3½, Rat.....	$4.70	$5.25
No. 5, Mouse.....	$2.25	$3.00

Animal Trap Co.:
Out o' Sight, Mouse, ℔ doz.....$0.60
Out o' Sight, Rat, ℔ doz..... 1.20
Easy Set, Mouse, ℔ doz..... .35
Easy Set, Rat, ℔ doz..... .85
Out o' Sight Checkers, ℔ doz. holes ..... .12
Out o' Sight, Tin, 5-hole, ℔ doz. traps ..... .75

Trowels—

Disston Brick and Pointing..... 25%
Disston Plastering..... 20%
Disston "Standard Brand" and Garden Trowels..... 30%
Kohler's Steel Garden Trowels, ℔ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break, Forged Steel Garden Trowels, in bulk, net ℔ gro. $5.50
In 1 doz. boxes..... ℔ gro. $6.00
Woodrough & McParlin, Plastering. 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern..... 50&10%
Western Pattern..... 60&10%
Handy Trucks..... ℔ doz. $16.00
Grocery ..... ℔ doz $15.00
McKinney Trucks..... each, net $10.00
Model Stove Trucks..... ℔ doz $18.50

Tubs, Wash—

M'f'gr's list, price per gross.
No. 0 1 2 3
Galvanized..$67 $79 $91 $103 10&7½&5&5%

Twine, Miscellaneous—

Flax Twine:
No. 9, ¼ and ½-lb. Balls..21@23¢
No. 12, ¼ and ½-lb. Balls..19@21¢
No. 18, ¼ and ½-lb. Balls..16@18¢
No. 24, ¼ and ½ -lb. Balls. 15½@17½¢
No. 36, ¼ and ½-lb. Balls..15@17¢
Chalk Line, Cotton ½-lb. Balls .....24@29¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....8½@19¢
Cotton Wrapping, 5 Balls to lb., according to quality..13½@19¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....12½@15¢
American 3-Ply Hemp, 1-lb Balls .....13½@16¢
India, 2-Ply Hemp, 1½-lb. Balls, Balls (Spring Twine)...7½@9¢
India 3-Ply Hemp, 1-lb. Balls 7½@9¢
India 2-Ply Hemp, 1½-lb. Balls. 7@8½¢
2, 3, 4 and 5-Ply Jute, 1½-lb. Balls .....9@11¢
Mason Line, Linen, ½-lb. Bls.17¢
No. 24½ Mattress, ¼ and ½ lb. Balls, according to quality. 30@60¢
Wool, 3 to 6 ply....B 6¢; A 7½¢

Vises—

Solid Box.....60@60&10%

Parallel—

Athol Machine Co.:
Simpson's Adjustable..... 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co., Slide ..... 40&5%; 65%
Fisher & Norris Double Screw, net, each Nos. 2 $10.50; 3, $16.00; 4, $20.80; 5, $27.00; 6, $32.80.
Fulton Mach. & Vise Co.:
F. & R. Double Swivel Machinists' 40%
Star, Solid Jaw, Machinists'..... 40%
Hollands':
Machinists' ..... 40@40&5%
Keystone ..... 65&5@70%
Lewis Tool Co.:
Adjustable Jaw..... 30%
Monarch, 50%; Solid Jaw..... 50%
Massey Vise Co.:
Clincher 40%
Parallel Bar..... 15%
Perfect, 15%; Lightning Grip..... 15%
Merrill's 25%
Millers Falls Oval Slide Pattern. 60&10%
Parker's:
Victor, 20@25%; Regulars....20@25%
Vulcan's ..... 40@45%
Combination Pipe..... 55@60%
Prentiss ..... 20@25%
Rock Island..... 25%
Snediker's X. L..... 33⅓%
Stephens' 33⅓%

Saw Filers

Disston's D 3 Clamp and Guide, ℔ doz., $24.00, 30%; Clamps..... 30%
Perfection Saw Clamps, ℔ doz....$1.50
Reading 60%

Wood Workers—

Fulton Mach. & Vise Co.:
F. & R. Double Swivel Coachman's 40%
Star Solid Jaw Woodworkers'....60%
Massey Vise Co.:
Lightning Grip, 15%; Perfect....15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Fulton Machine & Vise Co., Combination Pipe..... 70%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe..... 40%
Parker's Combination Pipe:
8 Series, 60%; 187 Series, 60&5%; No. 870, 40%.
Rock Island Pipe..... 25%

Wads—*Price per M.*

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....$1.00
P. E., 9 and 10..... 1.25
P. E., 8..... 1.50
P. E., 7..... 1.50
Ely's B. E.,11 and larger..$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25

} Dis. 15%

Ware, Hollow—Cast Iron, Hollow—

Stove Hollow Ware:
Enameled .....45&10%
Ground .....50&5%
Plain or Unground.....60%
Country Hollow Ware, per 100 lbs .....$2.75@$3.00
White Enameled Ware:
Maslin Kettles.....65&10%
Covered Wares:
Tinned and Turned.....35&10%
Enameled .....45&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware..... 33⅓%
El-an-ge ..... 60&10%
Iron Clad Ware..... 70&10%
Lava and Volcanic, Enameled..40&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Stamping Co.:
Never-Break Spiders and Griddles ..... 65&10%
Steel Kettles, Maslins Scotch Bowls, Tin'd..... 60%
Steel Stew Pans, Stew Pots, etc., Porcelained 50%
Cleveland Stamping & Tool Co.:
Solid Steel Spiders and Griddles ..... 65&5%
Solid Steel Kettles..... 60&5%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

No.	℔ doz.
800—Brass King, Single Surface, Open Back.....	$2.80
862—White Hen, Spiral Grimp, Glass	$3.35
964—Royal Blue Enamel, Single Surface, Ventilated Back.....	$3.35
172—Our Best, Single Zinc, Soap Drainer	$3.35
722—Soap Saver, Single Zinc, Iron Top.....	$3.35
100—Northern Queen, Single Zinc, Perforated, Open Back.....	$3.00
134—Universal, Single Zinc, Extra Family Size, Ventilated Back....$2.80	
760—Banner Globe, Single Zinc, Ventilated Back.....	$2.25
57—Peerless, Double Zinc, Spring Protector	$3.70
56—Red Cross, Double Zinc, Swing Protector	$3.60
17—North Star, Solid Zinc, Swing Protector	$3.60
707—Jewel, Single Zinc, Pail Size.	$1.25
St. Louis Washboard Co.	
Ben Hur, Brass, Open Back.....	$2.50
Brass Key, Open Back.....	$2.75

Washers—Leather, Axle—

Solid .....90@90&10%
Patent .....90@90&5%
Cott: ⅞ 1 1¼ 1¼ inch. 9¢ 10¢ 11¢ 14¢ per box.

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$4.90 4.00 2.70 2.50 2.30
The above prices are based on $6.50 off list.

In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.
Avery Stamping Co.:
Standard, in 200 lb kegs, $6.00 ℔ 100 lb. discount; in 100 lb kegs, add 10¢ net ℔ 100 lb; in 5 or 10 lb boxes, add 50¢ net ℔ 100 lb; in 1 lb boxes, add $1.00 net ℔ 100 lb.

Cast Washers—

Over ½-inch, barrel lots, per lb.1½@1¾¢

Wedges—

Oil Finish.....lb., 2¼@2¾¢

Weights—Hitching—

Covert Mfg. Co..... 30&2%

Sash—

Per net ton.....$19.50@$21.00

Wheels, Corundum and Emery—

Pike Mfg. Co., Corundum, 65%; Emery 75%

Well—

8-in., $2.00; 10-in., $2.30; 12-in., $3.00; 14-in., $4.45.

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....72&10&7½%
10 to 18.....72½&10&10%
19 to 26.....75&10&10&2½%
27 to 36.....77½&7½%
Galvanized:
6 to 9.....72½&10%
10 to 14.....72½&10&5%
15 to 16.....72½&10&5%
17 to 18.....72½%
19 to 26.....70&5&2½%
27 to 36.....65&10&10%
Coppered:
6 to 9.....65&10&10%
10 to 14.....70&10&5%
15 to 18.....65&10&10&10%
19 to 26.....70&5&2½%
27 to 36.....72½&10&2½%
Tinned:
6 to 18.....67&10&10%
Brass.....15¾¢ lb., base
Copper.....15¼¢ lb., base
Cast Steel Wire.....50%

Spooled Wire—

Annealed and Tinned..75@75&10%
Brass and Copper....70@70&10%
Retailers' Assortments, per box, $1.90@$2.10
Wire Clothes Line, See Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

Steel Wire Goods.....90&10%
Brass Wire Goods.....90&10%
Brass Cup and Shoulder Hooks, 85%

Wire Cloth and Netting—

Galvanized Poultry Netting, 80&10@80&10&5%
Screen Cloth, 12 Mesh, Per 100 sq. ft.; Painted, $1.35; Galvanized, $1.95; 14 Mesh, Bronze $6.50.
Standard Galv. Hardware Grade: 100 ft. rolls, 2½ to 48 in. wide, Per 100 sq. ft.
Nos. 2, 2½ and 3 Mesh....$2.75
Nos. 4 and 5 Mesh.....$3.00
No. 6 Mesh.....$3.25
Nos. 7 and 8 Mesh.....$3.75

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural ....80&10@80&10&5%
Alligator or Crocodile.70&10@75%
Baxter Pattern S Wrenches, 70&5@70&10%
Drop Forged S.....45@45&5%
Acme ..... 60&10%
Alligator Pattern, 70%; Bull Dog..70%
Bemis & Call's:
Adjustable S, 40&5%; Adjustable S Pipe, 40&5%; Briggs Pattern, 40%; Combination Bright, 50%.
Steel Handle Nut..... 50&5%
Combination Black..... 50&5%
Merrick Pattern..... 50&5%
Boardman's 40%
Coes' Genuine Knife Hdl...40&10&5&5%
Coes' Genuine Steel Hdl...40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes' Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer..... 40&10%
Eagle 70%
Gem Pocket..... 30%
Hercules 70%
W. & B. Machinist:
Case lots..... 50&10%
Less than case lots..... 50%
W. & B. Railroad Special:
Case lots..... 50%
Less than case lots..... 40&10&5%
Solid Handles, P., S. & W..50&10%; full cases..... 50&10&5%
Standard Nipple Mfg. Co.:
Duplex Chain..... 50%
Uwanta Wrench Co.:
Uwanta Special, Iron Handle.... 40&10&5%
Other Wrenches..... 50%
Vulcan and Agrippa Chain..... 50%
Whitaker Machinists'..... 50&10%
Wizard Adjustable Ratchet..... 50%

Fruit Jar—

Benj. P. Forbes, Triumph, ℔ gro., $7.50; per doz..... $0.90

Wrought Goods—

Staple Hooks, &c., Hat March 17, '02.....90@—%

Zinc— (*Cash lots at mill.*)

Sheet.....per 100 lb., $6.75

For the Table of "Current Metal Prices" see the First Issue of Every Month

I.E.Ag '09